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BRONCHIAL LYMPHADENOPATHY, NONTUBERCULOUS *

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The tremendous number of observations that have been made on tuberculosis of the bronchial lymph nodes during the last hundred and fifty years yields a literature fairly surcharged with experimental and clinical data. An investigation of the work that has been done on the acute or subacute bacterial infections, on the other hand, is particularly striking on account of its paucity.

Several explanations can be deduced for this interesting status. It has been recognized, ever since the publication of Lalouette in 1780 (Traité des scrofules), and Leblond in 1824, that tuberculosis of the bronchial lymph nodes is a distinct disease. Furthermore, Louis (1825), Laënnec (1837), Fischer and others have emphasized the fact that tuberculosis is the most common disease of these lymph nodes and it occurs more frequently in them than in any other viscus of the body. It must be remembered that this information has been largely gathered from postmortem examinations, so it is not surprising that so much attention has been focussed on it. Acute and subacute infections of the bronchial lymph nodes have been studied by very few men, for the following fundamental reasons: (*a*) necropsy material has always been very scarce; (*b*) when available, it has been so overshadowed by the associated lesions in the respiratory organs, that its importance has been overlooked, and (*c*) the diagnosis may for obvious reasons be considered most difficult, both as to classic symptomatology and physical signs.

THE LITERATURE

It is highly interesting, in referring to certain fundamental facts that have been deduced concerning the anatomy and physiology of the bronchial lymph nodes, to review briefly some of the pioneer work that has been accomplished. Modern medicine is too much inclined to take for granted the investigations of the eighteenth and nineteenth centuries, forgetting men whose efforts and studies should always be a source of great stimulation. Becker, in 1826, following the researches of Mascagni and Cruikshank, divided the thoracic lymph nodes into (*a*) parietal and (*b*) visceral. It remained for a Frenchman, Baréty, however, so comprehensively and thoroughly to describe these glands, that, up to the present time, practically nothing has been added to his observations. His description has become so classic that scarcely a reference can be found, either anatomic or clinical, that does not quote him in great detail. He describes a tracheobronchial region that is comprised of all of the mediastinum except the heart. It is bounded above by the superior opening of the thorax, below by a plane, where the pulmonary veins empty into the left auricle. It is limited in front by the sternum, behind by the vertebral column and laterally by the lungs. Baréty divides the mediastinal glands into three groups: (1) pretracheobronchial right and left; (2) intertracheobronchial or subbronchial, right and left, and (3) interbronchial.

1. The pretracheobronchial group of glands occupies the anteriosuperior side of the obtuse angle, which is formed externally by the trachea and principal bronchus. They are situated on both sides, but hypertrophy and degeneration are found more commonly on the right.

2. The intertracheobronchial or the subbronchial right and left groups of glands lie on the under surface of the main bronchus. They are more numerous on the right than on the left side.

3. The interbronchial groups of glands occupy the angle of division of the bronchial tubes. They are found in the bronchial divisions up to the fourth order.

The physiology of the lymph nodes is so intimately associated with pathology and bacteriology that their normal function has been extensively studied by investigators in these allied sciences. Councilman, in the Harvey lectures, 1906-1907, in describing the changes in the lymphoid tissue in certain of the infectious diseases, stresses several salient facts. In the masses of small lymphoid cells, particularly along the convexity, are round or oblong foci of differentiated cells. They were first described by His, and later more fully studied by Fleming, who regarded them as centers of cell production or germinal centers. He especially emphasizes the fact that, in the study of the lymphoid tissues, one is impressed by a striking feature, i. e., its preponderance in childhood. They play an interesting rôle in the pathology of the tissue. Oertel first demonstrated that, in diphtheria, areas of necrosis occur in the lymph nodes, corresponding to the germinal centers. Similar changes are observed in scarlet fever, variola and other conditions.

Manfredi, in an experimental study on the function of lymph nodes, found that they act against bacteria by: (1) filtration; (2) diminishing the strength of the bacteria, whereby their virulence is partly or wholly lost, and (3) bringing into contact with the invading organisms the immune substances that are elaborated by the body in general. Next to the skin and mucous membranes the lymph nodes act as the strongest barrier against bacteria. Manfredi's experiments throw inter-

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esting light on the question of latency of bacteria in the lymph nodes, a subject to which too little attention has been paid in the study of infection and immunity. He found that *Staphylococcus pyogenes-aureus* lived latently in the lymph nodes of guinea-pigs forty days and in those of dogs, thirty days, while *B. typhosus* was present in guinea-pigs sixty days and in dogs thirty days. Pneumococci that were recovered from the lymph nodes did not kill rabbits; the same organisms cultivated from the blood or spleen were fatal to rabbits. Typhoid bacilli recovered from the glands lost their virulence for guinea-pigs, while the virulence of staphylococci and tubercle bacilli was definitely diminished by passage through the lymph nodes.

Baumgarten found that, following the intravenous injection of tubercle bacilli, animals developed a generalized tuberculosis of the lymph nodes, and that only when the glands could no longer hold back the bacteria did they get into the blood stream through the veins and invade the other viscera. He considered this highly presumptive evidence of the elective capacity of the lymph nodes to absorb circulating bacteria.

Loomis, Kalbe, Piccini and many others were able to demonstrate by animal inoculation the latency of tubercle bacilli in the bronchial lymph nodes of people in whom there was neither macroscopic nor microscopic evidence of tuberculosis. Kalbe, by cultivating and injecting lymph node material into animals, recovered streptococci, staphylococci, pneumobacilli and pneumococci, the last two of which were fatal in white mice in twenty-four hours, while the first two produced local abscesses in a number of instances. Perez, in eighty-eight cases, found latent bacteria most frequently in the subcutaneous lymph nodes; then in the bronchial group, and least often in the mesenteric glands.

The incidence of enlargement of the lymph nodes in childhood is so striking as scarcely to warrant statistical verification. It may, however, be well to comment on the fact that Laser, in examining 2,506 children, found that those from 7 to 9 years of age had enlargement of the glands in 96 per cent. of the observations; from 10 to 12 years, in 91.6 per cent., and from 13 to 14 years, in 84 per cent. Baer, reporting on twenty-five new-born infants and 350 older infants and children, rather cynically stated that nearly all children had enlarged lymph nodes.

In summarizing these investigations in an effort to determine their bearing on infections of the bronchial lymph nodes, the following facts assert themselves:

1. Lymphoid tissue is strikingly predominant in childhood.
2. The activity of the tissue can be judged by the presence of the germinal centers, which are rarely absent during this period.
3. Enlargement of the lymph nodes in the child is so common as to be almost constantly demonstrable.
4. Bacteria, in a latent stage, are present in many of these glands.
5. The virulence of these organisms is frequently attenuated.

It must, therefore, be strikingly apparent to all clinical observers that the lymphatic apparatus in childhood is constantly engaged in a system of defense against pathogenic organisms, whereby there is gradually developed for the body an immunity against these bacteria. Only a slight realization of this stupendous function is necessary to make one appreciate the great incidence of infections of the bronchial lymph nodes.

A careful survey of the literature bearing on the clinical signs of acute and subacute bronchial lymph node infections reveals the striking fact that it is extremely difficult to find records of observations sufficiently detailed to make a symptomatic diagnosis possible. Zabel quotes no less an authority than Heubner, who states in his textbook that the disease picture in enlarged bronchial glands is uncertain, and no one symptom can be a guide to an absolute diagnosis.

In an effort more definitely to stabilize the clinical manifestations of this important subject, a study has been made of a large number of cases in which physical examination and roentgen-ray findings have, as far as is possible, established the presence of an acute or a subacute bronchial lymphadenitis.

CASE GROUPS

The cases divide themselves into five groups, which may be arbitrarily described as:

1. Those in which malnutrition is the cardinal symptom: malnutrition type.
2. Those in which frequent colds or persistent cough is the primary symptom: subacute bronchitis type.
3. Those in which a pertussis-like cough is the most striking evidence: pertussoid type.
4. Those in which a low grade febrile course is the essential complaint: chronic febrile type.
5. Those in which there has developed persistent attacks of asthmatic bronchitis following an acute respiratory infection, usually a pneumonia: asthmatic type.

It may be presumptuous to attempt a classification of this sort in a disease picture that has always been accepted as somewhat ambiguous. In an effort to justify this classification, a more detailed outline of the typical history and symptomatology in each group is desirable.

1. *Malnutrition Type.*—These children are brought for medical advice usually on account of their general appearance. The most common complaint is that they have not looked well for a variable period, from several weeks to as long as from two to three years. They are often below weight and give a history of not having gained for a long time. The appetite is poor and the color pale. Fatigue and languor are frequently a source of worry, and the complaint is elicited either that the child never cares to play or exercise, or that, if persuaded to indulge in this form of recreation, he becomes fatigued in a short time. Digestive symptoms may develop, and one not infrequently hears that, incidental to his general lack of well being, the child has equivocal gastro-intestinal disturbances, for which there is no explanation. Notation may have been made of a slight afternoon rise in temperature, although this is rare.

2. *Subacute Bronchitis Type.*—The clinical picture in this class of case is somewhat variable. Most frequently there is present a chronic cough, with which there is little, if any, expectoration. The cough is liable to be more pronounced at night, although it is rarely severe enough to wake the child. In other cases, the essential element is the marked frequency of infectious colds, in which, notwithstanding their mildness, the symptoms persist for a long time. These children are much more liable to have a distressing cough with the upper respiratory infections; and when all other signs of an inflammatory process have subsided, the cough remains an irritating feature. Any of the general evidences of toxemia present in the malnutrition

type, loss of weight, pallor, poor appetite or lack of energy, may be present.

3. *Pertussoid Type.*—From an historical and from a clinical standpoint, this group of cases presents the most fascinating characteristics. In 1780, Lalouette, commenting on the symptoms in tuberculosis of the bronchial lymph nodes, called attention to the persistent cough, which was so changed in character that a diagnosis of pertussis was frequently made. Leblond, in 1826, described this same cough in patients with enlarged bronchial glands. Ley (1834) noted, in children with enlarged glands, attacks of violent coughing with a sonorous inspiration resembling whooping cough. Verliac, in 1865, stated that if the spasmodic cough lasted too long after pertussis, bronchial gland disease must be suspected. Daga emphasized the fact that the cough in bronchial gland involvement often returned in crisis, and that it was frequently spasmodic and had a peculiar sound, like the bark of a dog. Finally, Rilliet and Barthez commented on the fact that in these cases the diagnosis between pertussis and bronchial adenopathy was often difficult, if not impossible.

A careful consideration of the histories of this type of case reveals some interesting observations. It seems definitely possible to divide this group into several subdivisions, depending on the manner of development of the classic symptoms. One striking feature of these subdivisions is that they seem strongly influenced by the nature of the etiologic agent. Incidental to the epidemics of influenza that have been present during the last few years, cases of this type have been common. They group themselves into two subdivisions: (*a*) cases in which the pertussis-like cough has developed within a few days of the onset of the disease, and (*b*) cases in which this peculiar symptom has not become manifest for a considerable period of time, during which the essential symptom has been an ordinary cough incidental to the acute bronchitis.

The children in the first group are taken ill usually with the symptoms of a mild upper respiratory infection, malaise, moderate rise in temperature, coryza and slight cough. Within from two days to a week, these symptoms disappear, and the patient develops a cough which is at first described as harsh and barking and which rapidly becomes paroxysmal, developing a whoop so like pertussis as to make the differential diagnosis very difficult. There are, however, several important distinguishing features in this type of bronchial gland disease, which usually make its differentiation from whooping cough possible: (1) The paroxysmal character of the cough develops within a much briefer period, a few days instead of two weeks. (2) The actual length of the paroxysm preceding an inspiratory whoop is shorter than in whooping cough. (3) Vomiting, while present, is less common. (4) Children exposed may develop the same syndrome, but often only show the signs of a mild upper respiratory infection. (5) The course of this group of cases in which the characteristic whoop is developed in a few days is usually much shorter than in pertussis, the paroxysmal cough disappearing at times in from one to two weeks.

The cases in the second group are as a rule more severe from the onset, and the symptoms of an acute bronchitis are more striking than those of the upper respiratory tract. After the symptoms of acute intoxication have disappeared, the cough persists, and its intensity is out of proportion to the physical signs ascribable to changes in either the lungs or bronchial tubes. The cough, which is at first harsh and barking in character, may retain this peculiarity, or may become distinctly paroxysmal and finally develop a typical whoop, which may last for many weeks or, rarely, for several months. Slight afternoon rise in temperature is occasionally present and, depending on the degree of toxemia, any of the symptoms described in the malnutrition type of the disease may be in evidence.

It is, by inference, perfectly apparent that all types of bronchial lymph node disease may develop following any respiratory infection in the pleura, lungs or bronchi, irrespective of the etiology. There are, however, two distinct diseases following which the chronic pertussoid type of bronchial lymph node disease is extraordinarily common; namely, measles and pertussis. The frequent incidence of this situation has been responsible for erroneous deductions, particularly on the part of the earlier clinicians. See, in 1854, submitted a work in which he proposed to show the analogy which existed between pertussis and certain of the eruptive fevers, especially measles. He contended that the cough, the fever, the catarrh and the contagiousness were comparable. He based his contention on his own observations and on an historical study which showed that, since 1732, many had been impressed either by the simultaneous appearance of the two diseases or by the observation that pertussis frequently followed measles.

In view of the fact that nothing was known at the time these conclusions were drawn concerning either the physical or roentgen-ray diagnosis of bronchial lymph node disease, and since, following measles, it is most common to find secondary infections of the bronchial glands with symptoms suggesting pertussis, it is not surprising that errors should have been made. Many of the earlier writers were likewise struck by the similarity of the clinical picture of tuberculosis of the bronchial lymph nodes and pertussis, and descriptions were also given of cases of chronic pertussis lasting sometimes as long as from two to three years, with a characteristic cough. As early an observer as Lalouette realized, in 1780, that this peculiar character of the cough was probably due to vagus irritation, but it was not until much later, in the middle of the nineteenth century, that the bearing of secondary involvement of the bronchial lymph nodes in pertussis was appreciated. Noël Guéneau de Mussy, taking up the question of the analogy between bronchial adenopathy and pertussis, says:

> I have already noted the pertussoid character of the cough in certain types of adenopathy. It is difficult not to admit that this is due to a direct or reflex action on the vagus by the diseased glands. I do not contend that in pertussis an adenopathy is the intermediary necessary for vagus irritation. I believe, though, that in many cases the glandular involvement mixes its symptoms with those of the disease of which it is the complication. I am disposed to attribute to pneumogastric irritation, by enlarged bronchial glands, the so-called cases of chronic pertussis, which last sometimes from two to three years. Without affirming that the convulsive cough of pertussis, which seems to point to an excitation of the vagus, is associated with an adenopathy, and without denying that this neurosis of the tenth pair of nerves can be a direct manifestation of the malady, one can at least point to the fact that the laryngeal spasm in pertussis occurs only several days and even weeks after the beginning of the pertussis and after the development of the bronchial congestion. If one

can show that, at this point, signs of an adenopathy appear, the correlation of the two phenomena would be infinitely probable.

Guéneau de Mussy's contentions grow much more probable and logical when one remembers the pertussoid cases previously described, in which the characteristic cough develops only a few days after the onset of influenza infections, in which by roentgen-ray and physical examination enlargement of the bronchial glands is definitely demonstrable.

4. *Chronic Febrile Type.*—These are the cases which are the greatest source of concern to the family and the medical advisor. They are characterized by a low grade febrile course, usually without any subjective symptoms beyond those associated with a slight toxemia, such as pallor and languor. The condition may start as a mild upper respiratory infection, more commonly an influenza than any other, so benign in character that the mother is instructed to keep the child in bed until the temperature has been normal for from twenty-four to forty-eight hours. Much to the surprise of every one, the temperature does not reach normal and there is an afternoon rise in temperature of from a half degree to 2 degrees, rarely higher, that may last weeks, months and even years. At times, there are present the characteristic symptoms seen in any chronic infection. At other times, the well-being of the child is not disturbed in the least; and, eventually, the rise in temperature is ignored in the absence of other signs of infection.

5. *Asthmatic Type.*—Considerable exception may be taken by clinicians, particularly those interested in protein hypersensitiveness, to the assumption that there is a type of asthmatic bronchitis due to subacute infections in the bronchial lymph nodes. This is particularly so when one realizes that most children who suffer frequent attacks of asthmatic bronchitis develop enlargement of the glands, incidental to the absorption from the low grade inflammatory process in the bronchial mucous membrane. On the other hand, every one recognizes that there is a definite form of hypersensitiveness which evidences itself by bronchial spasm, in which the sensitizing protein is bacterial in character; and what focus, in view of the experimental work that has been done on the latency of bacteria in lymph nodes, can play a more effective rôle than the bronchial glands? Add to this evidence the fact that, in these children, a history is frequently elicited of attacks of asthmatic bronchitis beginning following an acute upper respiratory infection, usually a pneumonia; and the circumstances combine to make the hypothesis even to the most skeptical, a tenable one.

PHYSICAL EXAMINATION

In estimating the value of physical signs in the diagnosis of bronchial lymph node disease, it seems advisable to divide the upper portion of the thorax into four divisions, in order of their importance: (1) the spinal column between the seventh cervical and the fifth dorsal vertebrae; (2) the interscapular regions; (3) the superior sternal regions, including the sternoclavicular articulations, and (4) the regions to the right and left of the sternum between the clavicle, above, and the third rib, below.

1. It is to d'Espine of Geneva that the greatest recognition is due for his contribution of the most consistent physical sign in bronchial lymph node disease. This sign, which now so familiarly bears d'Espine's name, was first reported to the French Academy of Medicine in 1904, although the original observation had been made in 1889, while he was studying the early diagnosis of pneumonia of the upper lobe. One can do no better than to translate literally a short description of the sign as originally reported:

> The first signs of bronchial adenopathy are furnished exclusively by auscultation of the voice and by observing its character, nearly always in the region of the vertebral column, between the seventh cervical and the first (upper) dorsal vertebrae, either in the fossae under the spinous processes or lower down in the interscapular spaces. The sign consists in a timbre (quality) added to the voice, which one can call chuchotement (whispering in the ear or whispered pectoriloquy) in the first stage and bronchophony in a more advanced stage.

D'Espine comments further on his observations:

> In young infants, it is necessary to auscultate the quality of the crying voice. In a normal child, the characteristic bronchial breathing emanating from the trachea ends abruptly at the seventh cervical vertebra, where the lungs begin. In bronchial adenopathy this bronchial breathing extends to a varying degree into the space between the seventh cervical and the fourth or fifth dorsal vertebra, corresponding to the last part of the trachea and the bifurcation of the bronchi. Sometimes in extensive adenopathy, the bronchophony extends to the region of the lamina, more to the right than to the left. If auscultation of the spoken voice or the cry does not give a satisfactory result, one can try the whispered voice in children who cooperate and get an aphonic pectoriloquy (chuchotement). It has the same value as bronchophony. This bronchophony is the earliest and sometimes the only sign of bronchial adenopathy. In certain cases, however, one can also find, on percussion over the last cervical and upper dorsal vertebrae, definite dulness. Increased dulness in this region always coincides with intense bronchophony.

In a later contribution, d'Espine further emphasizes the value particularly of the whispered voice in eliciting his sign and says:

> The sign is most obvious if one makes the child speak or count in a low whisper. The voice is then accompanied by an added whispering sound localized to one or two vertebrae or possibly extending to the fourth or fifth. Bronchial breathing over this area has the same diagnostic value except that it is an indication of more extensive enlargement.

It may be advisable, in briefly commenting on d'Espine's original article, to call attention to the fact that some confusion has occasionally occurred on account of errors in translation. If care is not taken in translating "les prémieres vertèbres" referring to the upper dorsal, in the plural, the whole sense of the observation is lost. As a matter of fact, it is fairly generally recognized that, in older children, it is within normal limits to have what appears to be a positive sign over the seventh cervical or first dorsal vertebra without enlargement of the bronchial glands. Koranyi stressed this point and contends that pectoriloquy is only indicative of large lymph nodes if it occurs below the seventh cervical vertebra in young children, below the first dorsal in those 8 years of age, the second dorsal in those of 12, and the third dorsal in children 15 years old. The sign is brought out much more clearly if the child is instructed to bend the head slightly forward and fold the arms in front of the chest.

2. The spaces between the spine and the scapulae, even though their importance has been discredited by the French school, offer interesting and frequently striking evidences of bronchial gland disease. Dulness in this area, with characteristic auscultatory changes, is of greatest diagnostic value. The breath sounds,

particularly expiration, are prolonged and harsher than normal, and at times bronchovesicular or even bronchial breathing may occur. In simple bronchial lymph node disease, without an accompanying bronchitis, adventitious sounds are conspicuously absent.

3. Baréty, whose epoch-making thesis on disease of the bronchial lymph nodes has already been discussed, lays special emphasis on the importance of the superior sternal regions in physical examination. He briefly quotes Fonssagrives, who, in 1861, first described the percussion of the superior sternal region in tuberculosis of the bronchial lymph nodes, and noted the presence of dulness at the sternoclavicular articulation, although he did not appreciate its importance. Whereas dulness in the superior sternal region is a characteristic sign in enlargement of the bronchial lymph nodes, it can be definitely stated that in the series of nontuberculous cases on which this communication is based, its incidence was definitely less frequent than either d'Espine's sign or interscapular dulness.

4. Changes in the regions to the right and left of the sternum between the clavicle and the third rib are not encountered as often as those previously described, but when present they are, to say the least, most striking. Dulness often begins at a definite point to the right and left of the sternum, and increases as the midline is approached. The limit of this dulness to the right or left can often be definitely marked by dropping a line from the clavicle, either at its midpoint or at the junction of the middle and inner thirds, to the third rib.

Auscultation over this area shows usually prolonged and harsh respiration, occasionally in both stages, but more frequently confined to the expiratory murmur. The degree of this may be so great as to make the breathing bronchovesicular or even bronchial. In some cases, on the other hand, the most striking sign is diminished breathing. At times, this diminished breathing may be bronchovesicular in character. Râles, in this region as in the interscapular space, are usually absent, except in the presence of bronchitis.

ROENTGEN-RAY DIAGNOSIS

It is not within the scope of this paper to enter into a full discussion of the problem of the roentgen-ray diagnosis, but accuracy in estimating the extent of bronchial lymph node involvement is so essential that certain details of the value of the roentgen ray must be considered. In establishing a positive diagnosis of bronchial lymphadenopathy, it is certain that the roentgen-ray examination is of less importance than either the history or the physical examination; but as an adjuvant its value cannot be overestimated. Furthermore, stress must be laid on the fact that there will always be cases of unexplainable malnutrition in which there is an absence of physical signs, and in which roentgen-ray examination and that alone will establish a positive diagnosis.

TUBERCULIN REACTION

It is perfectly obvious, without further comment, that the great problem in the management of this interesting disease is the exclusion of tuberculosis. Without entering into an argument as to the relative value of the Pirquet and intradermal reactions, it will suffice to quote no less an authority than d'Espine, who says, "Von Pirquet's sign, which I use daily, will settle the question." There can be no question that, in a vast majority of cases, this conclusion is correct. If doubt persists in spite of a negative Pirquet reaction, the problem can be further elucidated by the application of the intradermal test.

TREATMENT

The treatment of nontuberculous bronchial lymphadenopathy may be discussed under three main headings: rest, fresh air and diet. The details must vary with the individual case. The importance of avoiding fresh infection, particularly exposure to tuberculosis, cannot be overestimated. In a general way, it may be positively stated that there is no disease, the management of which is so difficult, on account of its tediousness, for both the mother and the physician. On the other hand, it is difficult to imagine any condition in which the results are as brilliant, if the family is made to realize that a disease is being combated in which the results are essentially slow, even though the outcome is practically always favorable. The role of drugs in the general management of these cases is, to say the least, a secondary one. Nothing further need be said on this phase of the subject, beyond calling attention to the fact that iron, iodin, cod liver oil and a few other less important preparations have been recommended. In cases with secondary anemia, they may be of some value; but even here it is doubtful whether better results cannot be accomplished by simple hygiene and dietetic measures. As in the treatment of lymph node disease in the cervical region, too much emphasis cannot be laid on the importance of removing foci wherever they exist. It may be well briefly to outline certain variations in the treatment, depending on the character of the individual case. In the malnutrition type of the disease, children must be kept in bed in the fresh air, preferably out of the city, until they are running a normal temperature, and until the behavior of their weight curve is such that one can be sure that the infection is under control. The treatment is a matter often of several months' duration. When it seems advisable to permit more liberty, the gradual assumption of the following regimen will be found most advantageous: (1) breakfast in bed; (2) arise at 10 o'clock; (3) rest one hour after mid-day dinner; (4) retire at 5 o'clock; (5) supper in bed; (6) at least twelve hours' sleep at night. How long these children must be kept out of school it is difficult to say. It is better that the child be absent from school too long than too short a time. In severe cases, the patient must be excluded from school at least a year. The reasons are obvious enough when one realizes how susceptible these children are to fresh infection. The diet in these cases must be a general one, except that it has been found beneficial to insist on the daily consumption of a quart of milk in all cases in which there is no idiosyncrasy.

The management of the pertussoid type of cases requires certain special methods of treatment. The degree of rest in bed depends on the temperature curve. Any of the drugs used in pertussis, belladonna, antipyrin or bromid, may prove of value, and, above all, the use of opium, particularly to prevent the irritating cough at night, which disturbs the sleep, is to be recommended. If the child vomits after eating, the mother must be instructed to feed him immediately, because no one element in these cases is so conducive to a chronic course as loss in weight. The methods of treatment outlined for the malnutrition and pertussoid type of case may be combined in handling these children in whom bronchial gland involvement is responsible for repeated or lasting upper respiratory infections, par-

ticularly bronchitis. The management of those cases running a chronic febrile course depends essentially on the stage of the disease at which the patients are first placed under medical observation. If they have been treated for an acute upper respiratory infection, particularly an influenza, and it is found after several days that a low degree afternoon temperature is persisting, they should be kept in bed until the chronicity of the temperature is well established. This direction may sound ambiguous, but it entails an absolute certainty that the general well-being of the child is not suffering as a result of the infection which is responsible for the rise in temperature. If there is progressive loss in weight or failure to gain, or if a secondary anemia develops which does not improve, absolute rest in bed is indicated. Otherwise, after two or three weeks' observation, these children should be gradually gotten up, following the scheme previously described in the treatment of the malnutrition type of case; and, eventually, in spite of their slight rise in temperature, which may last for months, they should be allowed to lead their normal lives and attend school.

The thermometer should be discarded because, if it is not conducive to the development of a neurosis in the child, it is in the mother, which is quite as serious. These children should, however, be seen by their medical advisers often enough that the latter may be certain that the chronic infection is in no way interfering with the general progress, the best criterion of which is normal gain in weight. Nothing beyond the general measures previously recommended can be advised in the treatment of the asthmatic type of bronchial lymphadenitis except the use of bacterial proteins, the specificity of which has been determined by previous skin tests.

CONCLUSIONS

1. Simple bronchial lymphadenitis, acute, subacute or chronic, is a distinct clinical entity in childhood.

2. It may be divided into five definite types, based on the clinical history and cardinal symptoms: 1. Malnutrition type. 2. Subacute bronchitis type. 3. Pertussoid type. 4. Chronic febrile type. 5. Asthmatic type.

3. When one considers the great incidence of respiratory infection to which bronchial lymphadenitis is secondary, the general conclusion can be reached that this type of disease, in contrast to tuberculosis, is the most common disease of the bronchial lymph nodes.

4. The diagnosis must be made by a combined consideration of the history, physical signs and roentgen-ray interpretations.

5. The most important question for differential diagnosis is the possible presence of tuberculosis, which can be established by the use of tuberculin.

6. The treatment may be briefly summarized under three heads: rest, fresh air and diet.

7. With accuracy in diagnosis and careful observation in the details of treatment, the prognosis is invariably good, unless a secondary infection takes place with the tubercle bacillus.

350 Post Street.

Complement Fixation in Exophthalmic Goiter.—The blood of some patients who show symptoms of exophthalmic goiter binds complement in the presence of an antigen made from normal thyroid glands. The reaction may be due to a specific thyroid substance which combines with an antibody in the blood of the patient.—J. Koopman, *Proc. New York Path. Soc.* **21**:55 (Jan.-May) 1921.

MEDICOLEGAL APPLICATION OF THE BLOOD GROUP

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The danger of using the blood group as a means of determining parentage in cases of suspected or known illegitimacy arises from the difficulty in establishing the origin of the particular blood group in each instance. The danger rests solely in the transmission of an unexpected blood group through the germ plasm of a heterozygous parent. The heterozygous status of a parent cannot be foretold today, except by a study of the offspring.

The criteria established by Ottenberg [1] to govern the medicolegal application of the blood group are incorrect in some instances, and based on insufficient evidence in others. They would lead frequently to the miscarriage of justice when applied by a court in the adjustment of a dispute concerning parentage. The families used by Ottenberg in formulating his criteria are too small in most instances to justify any conclusions.

Ottenberg has established certain definite laws in connection with the blood group by means of which he contends that the legitimacy of children can be determined:

1. If a child is in Group II, III or IV, when its parents are both in Group I, the child is illegitimate.
2. In unions of Group I and Group II, if a child is in Group III or IV, it is illegitimate.
3. In unions of Group I and Group III, if a child is in Group II or IV, it is illegitimate.

RESULTS OF CROSSING GROUP I WITH GROUP I

In a previous communication [2] on this subject, I published eight charts, which were representative of eight actual families. The blood of the families was grouped by myself. The Moss classification was used. The Group I of Jansky is the Group IV of Moss. The blood group of the family represented in Figure 1 of my previous paper, when classified according to the Jansky classification, shows, although both parents are in Group I, that there are two children who are in Group III, and four children who are in Group I. At that time I had completed grouping the blood of a family in which by the Jansky classification both parents are in Group I, but their twin daughters are in Groups I and II. Somewhat later, in grouping the blood of the Tink family,[3] I discovered two parents in Group I of the Jansky classification. Three of their children are in Group IV, and one child is in Group I.

In a family whose blood I have grouped, both parents are in Group II, but three of their children are in Group II, and one child is in Group I. The grouping of the blood of the grandparents in this family shows that the Group I could have arisen from either the maternal or the paternal side, as the parental stem on both sides consists of a cross between Groups I and II.

MEDICOLEGAL SIGNIFICANCE OF THESE FINDINGS

The first law of Ottenberg is invalid, as unions of Group I can result in children whose blood may be in

1. Ottenberg, Reuben: Medicolegal Application of Human Blood Grouping, J. A. M. A. **77**:682 (Aug. 27) 1921; Hereditary Blood Qualities, J. Immunol. **6**:363 (Sept.) 1921; Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**:873 (March 25) 1922.
2. Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**:89 (Jan. 14) 1922.
3. Buchanan, J. A.: A Consideration of the Laws of Heredity and Their Application to Various Conditions in Man, to be published.

Group I, II, III or IV. It is clear, since a Group I crossed with a Group I gives rise to groups other than itself, that it is unreasonable to contend that a Group I crossed with a Group II or Group III should not result in children in either Group I, II, III or IV. The groups possible in the offspring of any union depend on the groups present in the previous generations, and the heterozygous or homozygous status of the parents of the generation under consideration.

The blood groups possible from unions of Group III with Group III are undetermined, as there are not sufficient families on record in which this cross has been studied to justify any statements. From a study of the families in which it has been found that unions of Group II may result in children in Group I, and that unions of Group I may result in children in Group II, the suspicion has been aroused, since Group I parentage may transmit a Group III to the children, that Group III parents may transmit a Group I to the children. More crosses of Group III with Group III must be studied.

SIGNIFICANCE OF THE FAILURE OF THE CRITERIA OF OTTENBERG

The criteria of Ottenberg are built up on the belief that unions of Group I can breed only Group I children; and, when that belief is shown to be false, the theory on which he based his conclusions becomes untenable. The theory is still more erroneous in light of the knowledge of the segregative properties of the germ plasm. Ottenberg contends, as do many others, that Group IV is the result of the union of certain specific substances on which Groups II and III depend. If this theory is correct, if the blood group is hereditary, and if the theory of heredity is correct, all unions of Group IV, because of the segregative function of the germ plasm, would result in children who are in Group IV, Group II and Group III, as happens in the second filial generation of all plants, fowls and animals in which an hereditary character has been studied. The fundamental factors which enter into the make-up of the parents are segregated in the children. Unions of pure Group IV are on record.

The incorrectness of the statement of Ottenberg [4] that he could foretell the parents by studying the children resulting from unions of Groups IV and I is shown in the seventy-second family of von Dungern and Hirschfeld;[5] the twenty-ninth and thirty-eighth families of Learmouth,[6] and in the Tink family [3] of my own investigation. The union of pure Group IV and pure Group I of the Jansky classification results in children in Group IV and Group I, in the ratio of three of the former to one of the latter. Unions of heterozygous Group IV and heterozygous Group I result in the reappearance of the groups present in previous generations, as well as those present in the parents of the children under investigation, provided there are a sufficient number of children to permit of all the possible groups being segregated.

The entire data concerning the families on which my conclusions are based will be published in the near future.[3] Each family is uninvolved by any question of illegitimate children. My findings are in accordance with all the results of studies of the blood group in families that have been published; but by using a fairly fixed standard sized family, and by carrying the grouping into the third generation and even into the fourth, I was able to determine what groups might occur from most of the possible crosses of the blood group. The results show the fallacy of the theories concerning the two specific substances on which the blood group has been supposed to depend. The interesting studies of Learmouth show that the old theory of the two specific substances for the blood group and the mendelian inheritance of the blood group are at variance. The blood group is either not hereditary, or the laboratory experiments concerning the specific substances responsible for the blood group are being misinterpreted. The blood group follows in its transmission between generations the two laws of Mendel.

4. Ottenberg, Reuben: Footnote 1, third reference.
5. Von Dungern and Hirschfeld: Ztschr. f. Immunitatsforsch., Orig. **8**: 284, 1910.
6. Learmouth, J. R.: The Inheritance of Specific Iso-Agglutinins in Human Blood. J. Genetics **10**: 141-148 (Aug.) 1920.

SUMMARY

The criteria of Ottenberg to govern legitimacy by means of the blood group are dangerous. The blood group cannot be used in the adjudication of medico-legal disputes concerning parentage without carrying the grouping back at least three generations, and even then there exists the possibility, because of the heterozygous status of a parent, of an unexpected, yet legitimate, group appearing without its definite origin having been determined.

OBSERVATIONS ON THE ETIOLOGY AND PATHOLOGY OF CHOREA MINOR *

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Far reaching as have been the advances in modern methods of clinical and laboratory investigation, it cannot yet be said that a definite answer has been found to the problem of chorea minor. To the older physicians, it was a functional disorder of the brain; while to a younger generation, it may be of an infectious, a rheumatic, an organic, a toxic or even a syphilitic origin. Evidence may easily be found to support any of the above theories.

The disorganizing confusion which arose from classifying as chorea every morbid process which had as a distinguishing feature athetoid, bizarre or purposeless movements has, happily, long since been dispelled. To that extent, our problem is easier; but much unexplored ground remains to be covered before we can truthfully say what the actual causative factor is and what pathologic processes ensue.

In discussing the pathology of chorea minor, Poynton and Paine [1] emphasize the fact that we must not be satisfied with the plain statement that chorea minor may be the first manifestation of acute rheumatic fever, but must actually link them together as part and parcel of the same process. They further state that it will be a distinct advance in our knowledge when the answer to this is finally determined.

A step forward was made when Aschoff described the so-called submiliary nodules of rheumatic fever. These, it may be recalled, were focal lesions, most frequently found in the walls of the left ventricle and characterized by fan-shaped collections of giant cells,

* From the New York Nursery and Child's Hospital, and the Department of Pediatrics, Cornell University Medical College.
* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.
1. Poynton and Paine: Researches on Rheumatism, London, J. and A. Churchill, 1913, p. 257.

recalling to some extent the giant cells of similar shape which Dorothy Reed has described in Hodgkin's disease:

Besides these large cells, there are lymphatic and neutrophilic leukocytes as well as some containing eosinophil granules, concerned in the building up of the nodule. These infiltrations of small cells are continued as streaks into the surrounding tissue. The rheumatic nodules which are grouped around vessels are very small.

In the great majority of all his cases of valvular disease, Aschoff [2] "found no fresh inflammation at all, but only more or less numerous perivascular fibrous nodules, which are, in all probability, to be regarded as the healed remnants of the rheumatic nodules."

Coombs [3] agrees that these submiliary nodules are food for much thought. He believes that it cannot be doubted that they are inflammatory in type and represent the reaction of the connective tissue to an infection rather than an intoxication only, and that the infective agent itself comes in contact with the tissues at the points where the nodules form. He examined a number of hearts from cases of pneumonia, malignant endocarditis and suppurative pericarditis without finding anything at all like an Aschoff nodule.

Confirmation of these findings of Aschoff has been made by a number of observers abroad, especially Fraenkel,[4] who believes that, even in the absence of a history of rheumatic fever, the finding of Aschoff nodules is strong presumptive evidence of a preceding rheumatic infection. Rothschild and Thalheimer,[5] in their conclusions, make the definite statement that, in rheumatic myocarditis, foci, termed submiliary nodules of Aschoff, are present, which are characteristic of the rheumatic infection.

Bearing this fact in mind, the following case report is of extreme interest.

REPORT OF CASE

History.—G. R., girl, white, aged 20 months, was brought to the New York Nursery and Child's Hospital by her mother because of irritability and rapid breathing. The parents were in good health, although the mother had had acute rheumatic fever involving both knees. The maternal grandfather was reported as having had "rheumatism." One other child was alive and well, and there had been no miscarriages.

The infant had been born at term, and the delivery was normal. She had been breast-fed for one year and then put on the usual mixed diet. Up to the present illness, her general health had been good.

Six weeks before, she had become very irritable. For three days fever was present, and the family physician made a diagnosis of sore throat with a secondary adenitis. A throat culture was negative for diphtheria. The irritability continued, though the other symptoms subsided.

Five days before admission, the mother noticed that the child was breathing very rapidly, and for that reason brought her to the hospital.

Examination.—The salient features of the physical examination were a markedly enlarged heart, a systolic and an early diastolic murmur, a breathing rate of eighty a minute, a greatly enlarged liver, a slightly enlarged spleen, a red throat, and a temperature of only 99 F.

Fluoroscopic examination ruled out pericardial effusion and all disease of the lung.

During the first six days in the hospital, the only changes noted in the physical condition were the development of an inconstant to and fro friction rub in the third left interspace, a slight diminution in the size of the liver and a slight edema of the face. No petechiae were noted, there was no cyanosis and the blood culture was negative.

The spinal fluid was clear and under no increased pressure, and no globulin was found. The cells numbered 10 per cubic millimeter, and were all lymphocytes. The blood examination revealed a leukocytosis of 25,000, with a differential count of 69 per cent. polymorphonuclears, 21 per cent. small lymphocytes and 10 per cent. large lymphocytes.

It was the general opinion that we were dealing with an acute endocarditis and pericarditis, the origin of which was uncertain.

Course.—On the seventh day of her stay in the hospital, the patient developed a typical chorea minor, and the temperature, which had never gone above 100 F., rose to 101.5 F. We are not insensible to the difficulties often attendant on the correct diagnosis of true chorea in infancy, and we shall obey Sturges'[6] injunction that every case thus diagnosed needs the guaranty of a full description.

On the morning of the seventh day, it was noticed that the right arm was moved over the covers in a jerky, purposeless, incoordinate manner. Later, on the same day, the movements were noted in the left arm. The following day, both lower extremities were in a state of constant incoordinate movement. The facial muscles exhibited peculiar grimaces, and the shoulders were shifted about in an unmistakable manner. They were not the restless movements of a sick child.

These pronounced motor disturbances continued with varying severity until a fatal termination, three days later. At no time were any subcutaneous nodules seen, and they were searched for diligently; nor was there at any time evidence of joint involvement.

Pathologic Findings.—Two blood cultures having been negative, we were forced to the conclusion that the case was one of true rheumatic carditis and pericarditis. This diagnosis were borne out at necropsy; for the heart and pericardium were both involved, the mitral valve showing a number of very small vegetations, while the pericarditis, which, as is well known, is almost always of a rheumatic type in childhood, was nonpurulent.

Microscopic examination of the heart muscle revealed typical Aschoff nodule cells, although the arrangement of the majority of them was not fan nor rosette shape, owing, probably, to the short course of a fulminating infection.

Unfortunately, permission to examine the brain could not be obtained.

COMMENT

Since the middle of the last century, when Germain Sée first offered evidence that chorea minor and rheumatic fever were allied, and Roger, a few years later, grouped chorea, rheumatism and endocarditis together in the phrase "la chorée rheumato-cardiaque," all pediatricians have had occasion to verify their conclusions. Cheadle [7] quotes Trousseau as being the first to recognize a rheumatic sore throat; and, since that time, evidence has piled up which definitely links tonsillitis with rheumatic fever, and further proves that the sore throat as a rule precedes the acute attack.

All of these observations do not explain the cases of chorea which give no sign of rheumatism. These cases have been the great stumbling block to our full acceptance of the theory that chorea is mainly rheumatic in origin.

The case reported, occurring at an age when both chorea and rheumatism are extremely rare, tends to strengthen the belief that sore throat should be looked on as a possible manifestation of rheumatic fever, and that chorea minor should be considered, at least in childhood, as definite evidence of a rheumatic infection.

2. Aschoff, L.: Verhandl. d. deutsch. path. Gesellsch. **8**: 46, 1904.
3. Coombs, C.: Rheumatic Myocarditis, Quart. J. Med. **2**: 26, 1908-1909.
4. Fraenkel, E.: Beitr. z. path. Anat. u. z. allg. Path. **2**: 597, 1912.
5. Rothschild, M., and Thalheimer, W.: On the Significance of the Submiliary Nodules of Aschoff in Rheumatic Fever, J. Exper. Med. **19**, No. 5, 1914.
6. Sturges, O.: Chorea in a Child Under Three, Lancet **1**: 109, 1888.
7. Cheadle, W. B.: The Rheumatic State in Childhood, London, 1889.

The most recent advances in our knowledge of the pathology of chorea minor are undoubtedly due to the impetus given by a more correct understanding of the physiology of the basal ganglions. Lesions of this area may certainly cause involuntary movements of the skeletal muscles, as has been shown by Hunt.[8] Wilson's[9] earlier work also proved that many involuntary motor movements were due to a lesion in the corpus striatum.

Another factor which has helped in our understanding of the pathology of chorea minor has been the interesting histologic studies of the brain in epidemic (lethargic) encephalitis. Alfaro[10] believes that chorea is the result of the action of bacterial poisons on the basal ganglions, particularly the striate body. He assumes that there is an encephalitis due to a rheumatic poison.

One of the most interesting contributions is an exhaustive study made by Marie and Tretiakoff[11] of the nerve centers of a 10-year-old girl who died at the height of an attack of chorea. They describe a typical encephalitis, involving to a slight degree the cortex, but showing marked and distinct changes in the corpus striatum. The only condition from which their findings were indistinguishable was epidemic encephalitis.

Schuster[12] reports four cases of chorea, in all of which the patients had an encephalitis, the chief lesions occurring in the thalamus and the red nucleus.

These findings are distinctly helpful in localizing the major pathologic changes. We may not agree that in the majority of cases such marked organic lesions occur, but it cannot be doubted that in those areas there are certain happenings which give us the typical picture of chorea minor.

It is conceivable that an encephalitis may be of such a transitory nature that it leaves no permanent damage; but when we seek support for this theory in the spinal fluid we are distinctly disappointed, as the majority of investigators report negative findings.

Quigley[13] has succeeded in getting positive cultures from both the blood and the spinal fluid in ten out of twenty-one cases and from either one or the other in fourteen cases. There was no increase in the cell content, and the globulin findings were negative.

Cobb[14] raises an objection to the organic theory, stating that there can be no doubt that chorea may follow fright or sudden emotion; but he asks the question whether or not an organic lesion, previously without overt symptoms, is suddenly able to be activated by an emotional shock. He believes that the records of many cases go to prove that it must be considered a reasonable possibility, although the physiologic and pathologic mechanisms are not understood.

If we accept the foregoing suggestion, which explains not only the cases of chorea minor due to shock but also those of chorea gravidarum, we are entitled to consider chorea minor as the manifestation of the action of toxins on the brain, particularly the basal ganglions.

These changes may produce a mild epidemic encephalitis, which usually does not but may cause permanent organic changes; and, in certain individuals, especially females, leaves on the personality, as Cobb says, "such indelible impressions of mental anguish of having lived through a period of lack of motor control that if, in later life, this individual is to have a psychosis, it may more easily take the form of chorea than any other type of symptomatology."

SUMMARY

Aschoff nodules have been demonstrated in the heart muscle of a 20-months-old child who had chorea and a fulminating rheumatic carditis and pericarditis.

Advances in the study of the physiology of the basal ganglions make it seem likely that the chief pathologic changes in chorea minor occur there.

39 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. H. F. HELMHOLZ, Rochester, Minn.: The studies that have been made in large series of cases of encephalitis have thrown a great deal of light on the study of the so-called rheumatic cycle in its neurologic manifestations. The definite localization in the basal ganglions in encephalitis, particularly those in the lenticular nucleus, has produced a syndrome which, in the acute stage, is indistinguishable from what we call chorea. It is interesting to note that in a great number of these cases the choreic manifestations persist for only a short time. They seem to be only a transient stage. We have observed this last year a number of residues of encephalitis involving the basal ganglions. In about two thirds of these cases, we have had a definite history of an attack of choreiform movements lasting usually for a period of several weeks and then clearing up, the patient being perfectly well for a time and then having a secondary involvement which led ultimately to the so-called parkinsonian syndrome. In chorea, we are unquestionably dealing with an infection, and just as it is difficult to isolate the organism from the joints and heart valves, so it is difficult to isolate the organism in the brain. In the literature of encephalitis the world over, we find that many observers have been able to isolate organisms from patients who died of encephalitis, and have also been able to find those organisms in the area of inflammatory reaction. So it is not surprising that it is difficult to isolate organisms in chorea. There is no question that we are dealing with an encephalitis due to a specific organism which has a tendency to localize in the basal ganglions, but we also have very marked psychic disturbances which may indicate that there is involvement elsewhere. It may be that these changes are the cortical changes described by Marie. I wish to emphasize the importance of a careful histologic study of all cases of chorea that come to necropsy.

DR. H. W. CHENEY, Chicago: Clinical experience bears out the fact that infections are the cause of chorea, and my habit has been to look for the focus of infection in all cases, and I usually find it. One point is that, while the tonsils may be responsible for some of the cases, I have seen cases recently in which the only apparent sources of infection were bad cavities in the children's teeth, and the removal of those teeth cleared up the disease promptly and well. While the treatment was not brought out in the paper, bad cases of chorea can be controlled without the use of opium or bromids by administration of sufficient acetylsalicylic acid. I give several doses daily up to 10 grains at a time. That will control the involuntary movements.

DR. WALTER E. SIMMONDS, Chicago: With regard to the use of acetylsalicylic acid, in some experiments which are running parallel to the ones we did on arthritis in rabbits, we found that when we gave acetylsalicylic acid, inflamed kidneys resulted. So in the treatment of chorea I would hesitate to give this drug. I find that these patients respond quite as well to the arsenical preparations.

8. Hunt, J. R.: Brain **40**: 58 (May) 1917.
9. Wilson, S. A. K.: Experimental Research into the Anatomy and Physiology of the Corpus Striatum, Brain **36**: 427, 1914.
10. Alfaro, G. A.: Epidemic Encephalitis and Chorea, Arch. latino-am. de pediat., Buenos Aires, Nov.-Dec., 1921, p. 546.
11. Marie, P., and Tretiakoff, C.: Examen histologique des centres nerveux dans un cas de chorée aigue de Sydenham, Rev. neurol. **36**: 428 (May) 1920.
12. Schuster, H.: Beiträge zur Histopathologie und Bakteriologie der Chorea infectiosa, Ztschr. f. d. ges. Neurol. u. Psychiat. **59**: 332, 1920.
13. Quigley, W. J.: Observations on the Bacteriology of Chorea, J. Infect. Dis. **22**: 198 (Sept.) 1918.
14. Cobb, S.: Some Neurological Aspects of Chorea, M. Clinics N. America **4**: 1863 (May) 1921.

Dr. Louis C. Schroeder, New York: What should be particularly interesting is to get an uncomplicated case of chorea with the demonstration of Aschoff bodies in the cardiac musculature.

GASTRIC FINDINGS IN CHILDREN WITH ANOREXIA *

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AND
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Much has been accomplished during the last few years with the child who is chronically underweight for his height. Through the efforts of Emerson [1] and others, the relation of "malnutrition" to physical defects, improper food habits, overfatigue and errors of home and school life has been pointed out. Many underweight children have been made "free to gain" by the removal of these handicaps.

In our clinical work with the underweight child, we occasionally encountered children who, although rendered free to gain, failed to increase in weight on account of a persistent anorexia. These children with poor appetite ate less than the required number of calories and were underweight because they ate insufficiently. Physical and laboratory examinations showed them to be free from tuberculosis, anemia, physical defects, diseased tonsils, adenoids and other known causes of anorexia. Their diets were like those on which our other underweight children thrived, containing an abundance of accessory food factors. Cases of poor home environment or lack of cooperation of parent or child are not included. All but three children had brothers or sisters who ate well. They were given only three meals a day, avoiding excess of fats.

TABLE 1.—GROUP A: CHILDREN WITH GOOD APPETITE

No.	Name	Sex*	Age, Yrs.	Weight, Pounds	Per Cent. Underweight†	Stomach Empty In	Acid Total	Acid Free	Date‡
1	R. A.	♂	7	50¾	+10	5 hr.	80	34	12/ 6/21
						4	47	21	3/28/22
2	S. L.	♀	8	50	1	5	90	6	12/16/21
						5	40	4	4/ 1/22
3	B. L.	♀	7	56	6	5	55	34	12/16/21
						3½	68	30	4/ 1/22
4	G. B.	♂	8	49½	5	4½	50	34	12/16/21
						3½	46	22	3/25/22
5	H. H.	♀	9	65	+6	5	31	23	12/28/21
						4½	38	10	4/ 1/22
6	I. M.	♀	11	74½	+3	3½	55	23	12/28/21
							67	24	4/ 1/22
7	H. A.	♂	7	47¼	9	4½	64	36	12/28/21
							45	17	3/25/22
8	S. L.	♂	8	50	5	4	74	42	12/28/21
						4½	72	36	4/ 1/22
9	G. M.	♂	7	63	+14	4	73	40	12/30/ 1
							60	34	3/25/22
10	J. W.	♀	8	54½	10	4	64	26	12/31/21
							72	35	4/ 1/22
11	N. D.	♂	7 5/12	54	+9	4	55	18	1/ 4/22
						4½	51	19	3/25/22
12	E. P.	♂	7	46	4	5	44	10	1/14/22
							47	16	4/ 1/22

* In this column, ♂ indicates male, ♀, female.
† Computed according to the average weights for heights of Boas and Burke.
‡ Date refers to gastric analysis; roentgen-ray examinations were made several days earlier.

The present study deals with the gastric motor and secretory functions of two groups of children: Group A, twelve normal children with good appetite; Group B, twenty-one more or less underweight, but otherwise normal, children with poor appetite.

Observations were made on the former group in order to establish a basis for comparison. Observations were repeated: (*a*) in a number of subjects of both groups after a few days; (*b*) in most subjects of both groups after a lapse of several months.

The early repetition was deemed necessary to detect any variations which might be due to technic or to individual variations which might occur from day to day. The repetitions, some months later, served to show any variations which might occur after such a lapse of time, as well as changes which might occur when improvement had taken place.

METHODS

The motor meal [2] consisted of 240 c.c. of warm milk, 30 gm. of barium sulphate, 4 gm. of sugar and two slices (45 gm.) of white bread (without crust). These were well mixed, and fed at 9 a. m., following a fast of about fifteen hours. The entire meal was given within fifteen minutes. Serial films were taken four hours later, and each succeeding hour, until the stomach was empty. The pictures were taken with the subject prone on the cassette, with the tube at the back. The subjects were kept more or less occupied with games and ordinary indoor activities, and were not permitted to take anything by mouth or to lie down (except for the roentgen-ray examination) until the examination was concluded.

TABLE 2.—GROUP B: CHILDREN WITH ANOREXIA

No.	Name	Sex	Age, Yrs.	Weight, Pounds	Per Cent. Underweight	Stomach Empty In	Acid Total	Acid Free	Date	Inches Below Aver.
1	P. R.	♀	2½	24	7	7 hr.	..	..	9/30/21	
2	A. S.	♂	6½	39	17	7	..	..	11/11/21	
3	M. G.	♀	6	41	5	7	52	16	11/ 2/21	
						8	..	..	12/27/21	
4	K. B.	♂	6¼	42	3½	7	37	12	11/16/21	
						7	..	..	11/31/21	
						5½	61	17	4/ 8/22	
5	E. F.	♀	6	43	11	6	..	..	11/26/21	
6	T. G.	♀	6	40	3	6	61	11	12/27/22	1.3
				41¼		6½	65	20	4/ 1/22	
7	C. C.	♂	7	45	2	5½	39	5	12/27/21	1
				49	..	3½	60	11	4/ 1/22	
8	P. C.	♂	8½	45	0	4	55	22	12/27/21	4.8
				46¾	..	3½	76	33	4/ 1/22	
9	G. A.	♂	6½	46½	10	5½	55	14	12/30/21	
				41¾	..	4½	77	22	3/25/22	
10	W. S.	♂	11½	54	10	7	60	22	1/10/22	
				52½	..	4½	66	34	4/22/22	
11	A. C.	♂	4½	39¾	4	6	20	0	1/18/22	2.5
				39¾	..	5	30	0	4/ 8/22	
12	L. N.	♂	7½	52	0	3½	45	17	1/28/22	
				52	..	4½	60	30	4/ 8/22	
13	M. C.	♀	11	69	12	5	14	0	2/ 8/22	
				69	..	3½	22	0	4/18/22	
14	M. A.	♀	6¼	37	17	8	36	5	2/10/22	
				38½	..	3½	45	16	4/ 1/22	
15	E. K.	♂	10½	53½	14	6	58	25	2/11/22	
16	R. P.	♂	6	47	0	6	82	23	2/18/22	
17	J. R.	♂	8¼	58¾	14	5	57	23	2/18/22	
				58¾	..	5½	82	26	4/18/22	
18	G. C.	♂	6	42½	10	7	43	15	3/ 4/22	
				42½	..	5½	75	30	4/ 8/22	
19	C. P.	♂	7	45½	16	8	77	38	3/10/22	
						7	69	34	3/13/22	
20	F. M.	♂	1 7/12	21¾	5	7	40	8	3/10/22	
							39	6	3/13/22	
21	P. M.	♀	1⅝	26	0	5	56	13	4/20/22	
							41	6	4/21/22	

* From the department of pediatrics and roentgenology of the Evanston Hospital.
* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Emerson, W. R. P.: Nutrition Clinic in the Public School, Am. J. Dis. Child. **17**: 251 (April) 1919.

2. This meal (except for the amount of barium sulphate) is recommended by the Royal Society of Medicine as standard for radiographic examination of the alimentary canal.

A few days later, a test breakfast, consisting of five arrowroot crackers, 240 c.c. of warm water and 4 gm. of sugar, was given at 9 a. m., after a fast of about fifteen hours. One hour after ingestion, the stomach was emptied with a Rehfuss tube, suction being applied with a syringe. Aspirations were usually limited to about ten minutes. Subjects were not permitted to take anything by mouth, nor to lie down until the aspiration was completed. They were asked to expectorate freely and not to swallow saliva during aspiration.

Total and free hydrochloric acid determinations were made on the mixed, unfiltered gastric contents according to the Toepfer [3] method.

RESULTS

Serial roentgenograms on the twelve children with good appetite showed all stomachs empty within five hours, with an average emptying time of four and one-half hours. Similar motor function tests on the twenty-one children with poor appetite showed that their stomachs usually emptied much more slowly—in only one of the twenty-one children was it empty within the time found to be the average for the former group. A repetition of the motor function tests within a few days in a number of subjects gave results which checked very closely.

TABLE 3.—SUMMARY OF THE FIRST SERIES OF MOTOR FUNCTION TESTS

	Number of Cases	Number of Cases in Which Stomach Emptied in								Average Emptying Time
		3½ Hrs.	4 Hrs.	4½ Hrs.	5 Hrs.	5½ Hrs.	6 Hrs.	7 Hrs.	8 Hrs.	
Group A (good appetite).....	12	1	4	2	5	..	..	..	..	4.5 hrs.
Group B (poor appetite).....	21	1	0	0	4	2	5	7	2	6.1 hrs.

Before our work had progressed very far, we noticed that many of the underweight children with anorexia belonged to the types Mills [4] so clearly describes as hyposthenic and asthenic. We found the habitus of children to conform with the four types he found in the adult: hypersthenic, sthenic, hyposthenic, and asthenic. Eleven of the twelve children with good appetites were of the sthenic habitus; whereas, only five of the twenty-one with poor appetites were sthenic, the other sixteen being hyposthenic or asthenic. Mills shows that the person with the hypersthenic habitus has the most rapid gastric motility; the asthenic, the slowest—the stomach frequently not being empty six hours after the standard opaque meal.

In Table 4, the original emptying time of the stomachs of seven children of Group A and thirteen children of Group B are compared with the findings a number of months later. Seven of the children of Group B had improved in appetite and weight, as shown in Table 2.

The hydrochloric acid determinations were usually performed from three to seven days after the roentgen-ray examinations. In order to detect possible errors in technic or individual daily variations, these analyses were also repeated in a number of instances within a few days, with rather good agreement. Duplicate acid determinations were always made. After several months, the gastric analyses were repeated in the twelve children with good appetite and in twelve of the twenty-one with poor appetite. Table 5 gives the averages of total and free acid at the first analysis.

The most striking difference was found in the amount of free hydrochloric acid. For the children with good appetite it averaged 26.3; for the children with poor appetite, 14.9. Hurwitz,[5] who has recently worked with German children from 2 to 15 years of age, found an average of 48.8 for total acid and 14.3 for free acid.

TABLE 4.—A COMPARISON OF THE ORIGINAL EMPTYING TIME WITH THAT FOUND SOME MONTHS LATER

	Number of Cases in Which the Stomach Emptied in								Average Emptying Time
	3½ Hrs.	4 Hrs.	4½ Hrs.	5 Hrs.	5½ Hrs.	6 Hrs.	6½ Hrs.	7 Hrs.	
Group A (7 cases)									
First examination	0	2	1	4	..	..	..	..	4.6 hrs.
Later.....	2	1	2	1	1	..	..	..	3.6 hrs.
Group B (13 cases)									
First examination	1	..	..	3	2	2	..	4	5.9 hrs.
Later.....	3	..	3	1	4	..	1	..	5.0 hrs.

In Table 6, the original and subsequent average acid findings of the twelve children with good appetite are compared with those of twelve of the children with poor appetite who were reexamined. The appetite and weight of seven of the latter had improved.

It will be seen that the average total and free acid for the former group was somewhat lower when determined a few months after the first analyses; whereas, the average total and the free acid for the children of Group B were higher at the subsequent examination. Two of the children (Table 2, Cases 11 and 13) showed no free hydrochloric acid. On reexamination some months later, free hydrochloric acid was still absent. They had not improved.

The gastric return varied from 40 to 140 c.c., and averaged about 80 c.c. The amount of material recovered at the end of one hour bore no relation to the degree of acidity.

DISCUSSION

While the habitus (relation of the general "build" to the topography of the viscera) predetermines to a marked degree the motor function of the stomach, our results show that even the child with the asthenic habitus and long emptying time can so improve that the time is markedly shortened. Carman [6] says, "The function of the stomach is in proportion to the degree of asthenia present, and the greater the asthenia, the poorer the tonus and the longer the time required for the stomach to rid itself of its contents." Kerley [7] points out that one of the pronounced effects of delayed emptying is a loss of appetite, and that a child will not be hungry with a portion of a previous meal in the stomach. In our first series of examinations, all of the children with an emptying time of five

TABLE 5.—SUMMARY OF SECRETORY FUNCTION

	Number of Cases	Average Acidity	
		Total	Free
Group A (good appetites).....	12	61.2	26.3
Group B (poor appetites).....	18	49.4	14.9

3. Hawk: Practical Physiological Chemistry, Philadelphia, P. Blakiston's Son & Co., 1916.
4. Mills, R. W.: Am. J. Roentgenol. **4**: 155 (April) 1917.
5. Hurwitz, quoted by Bruning: Deutsch. med. Wchnschr. **46**: 883, 1920.
6. Carman: Roentgen Diagnosis, Philadelphia, W. B. Saunders Company, 1920.
7. Kerley, C. G.: New York State J. M. **20**: 345 (Nov.) 1920.

or more hours (twenty of the twenty-one) had very poor appetites, and sixteen were hyposthenic or asthenic. The influence of a few months of careful supervision in seven of the thirteen children with poor appetites who were reexamined is reflected in the shortening of emptying time (Tables 2 and 4), increase in the amount of hydrochloric acid (Tables 2 and 6) and increase in their appetites and weights. The two children without free hydrochloric acid (Table 2, Numbers 11 and 13) were of the asthenic habitus, but had no delayed emptying times. They failed to improve in spite of treatment. The seven children with poor appetite who improved after several months show that the motor and secretory function can be improved by simple measures.

TABLE 6.—COMPARATIVE STUDY OF GASTRIC SECRETORY FUNCTION

	Number of Cases	Average Acidity	
		Total	Free
Group A (good appetites)			
First examination	12	61.2	26.3
Later	12	55.1	22.3
Group B (poor appetites)			
First examination	12	45.5	12.1
Later	12	60.6	19.0

Our observations lead us to conclude that children of the hyposthenic and asthenic habitus are much more likely to have poor appetite, slow emptying time and low free acid than are those of the sthenic habitus, but that the emptying time can be shortened, and the hydrochloric acid, appetite and weight increased by proper measures.

SUMMARY

1. The average emptying time of the stomach for twelve children with good appetite was four and one-half hours; that for twenty-one children with poor appetite was six and one-tenth hours. The stomachs of the twelve children in Group A were empty in five hours; while sixteen of the twenty-one of Group B still had retention at the end of five hours.

2. All but one of the twenty-one children with poor appetite had an original emptying time longer than that found to be the average for the children with good appetite.

3. The average total hydrochloric acid for the twelve children with good appetite was 61.2, the free acid 26.3; for eighteen with poor appetite, the total acid was 49.4; the free acid 14.9.

4. In two children of the group with poor appetite, free acid was absent on examination and on reexamination months later, while their emptying times were not especially long.

5. Eleven of the twelve children of the former group were of the sthenic habitus. Sixteen of the twenty-one children of the latter group were of the hyposthenic or asthenic habitus.

6. In a number of asthenic children, the emptying time of the stomach and the amount of acid were influenced beneficially by proper measures, and this was reflected by an increase in appetite and weight.

ABSTRACT OF DISCUSSION

DR. W. MCKIM MARRIOTT, St. Louis: Dr. Sauer's paper is interesting, as it points out that there is not such a great deal of difference in the physiology of digestion in children and in adults. The paper is important because it points the way to the treatment of certain types of digestive disturbances in children. A number of deductions may be drawn from Dr. Sauer's paper, and some of these he has already mentioned. His results make very evident the fallacy of attempting to build up these malnourished children by stuffing them with food at frequent intervals, so that the stomach never has time to empty completely. Furthermore, in children of the type described, who are suffering from a deficit of hydrochloric acid, it is a mistake to give large amounts of cow's milk, as this food, more than any other, neutralizes the acid in the stomach. Cow's milk will neutralize about an equal volume of tenth-normal hydrochloric acid. We have recently been interested in the gastric secretion in infants, and our results are in entire accord with those of Dr. Sauer with older children. Malnourished infants who fail to gain and have a poor appetite often show marked deficiency in the hydrochloric acid of the stomach. We have found also that infections of any sort were likely to result in decreasing the acid secretion. I should like to ask Dr. Sauer if he has studied the effect of infection on the children studied by him.

DR. LEON T. LEWALD, New York: This work is exceedingly valuable and fits in with observations on younger children, young infants and young adults. In regard particularly to the emptying time of the stomach from the roentgen-ray standpoint: I am glad that Dr. Sauer gave his exact technic as to the quantity of food ingested, and while I find that this is not of great importance, as we have tried out various types of feedings and even the ingestion of a simple watery suspension of barium, yet the quantity given by him to a child of the age stated gives us something to go on in future studies. Also, I am glad to see that he checked his observations later. I should like to ask him two questions: First, if he has any explanation for the increased weight and appetite of the children? It has been suggested that the roentgen ray does stimulate the gastric and intestinal glands, and it is not unusual to find a few months after roentgen-ray examination that these persons have decidedly improved. The second question: Did he observe any other pathology than the slow emptying of the stomach to account for the condition of anorexia? In other words, did he find pyloric obstruction or pylorospasm or lesions farther down in the digestive tract, such as redundant conditions in the colon, that might account for the slow emptying of the stomach reflexly?

DR. JOHN A. FOOTE, Washington, D. C.: Dr. Sauer has made a very valuable contribution to what we know about nutrition in the older child. The scattered cases which do not respond to treatment and which show no other physical reason for not gaining are explained in a way. There are so many factors which have to do with the gain or loss of weight in the older child that it sometimes seems impossible to check up and correlate all of the conditions which might have an influence on the metabolism or the organization of food. Dyer of London is more impressed with improvement in the vital capacity of the child as a factor in improving weight. I wondered on hearing this paper whether Dr. Sauer had made any observations on the history of these children—what the heredity might have been, and what the earlier history might have been. Some years ago, Dr. Abt spoke of the nervous type of infant, the same type which has been described by Heim, who found that many of these had hyperacidity and belonged to the pylorospasm group. These children were very energetic and of neurotic parents; and as they grew older they were a matter of great concern to the family. They were neurotic and developed reactions to food, which showed bad adjustment to environment. They acquired food likes and dislikes, and sometimes insisted on having foods that did not agree with them, such as meats and sweets. It is quite possible that children who exhibit anorexia, impaired motor function and lowered hydrochloric acid, might have belonged to this hypertonic group in earlier life; that there might have been both a congenital condition and improper handling which resulted in the accentuation of the degree in which the children remained undernourished. The earlier treatment of such children should be psychologic—the prevention of negativism, and especially these little tryants should not be allowed to learn that they can intimidate the household by refusing foods.

DR. PARK J. WHITE, St. Louis: Dr. Marriott has mentioned the application of what Dr. Sauer has said to chemical findings in infants. Dr. Sauer's remarks about gastric and intes-

tinal motility in older children may also be applied to certain conditions in infancy. Dr LeWald mentioned pylorospasm in infants. When there is pylorospasm, there is in all probability also enterospasm. It is commonly accepted that the whole thing is probably due to overactivity of the vagus, which explains the good effects obtained with atropin. The condition should really be called pyloro-enterospasm. In such cases, once the vomiting has been overcome, and with it the starvation and constipation, the food is hurried through the intestines; and thus, once the pylorus has been passed, the intestines empty with considerable rapidity. These infants undoubtedly require more food than normal infants do.

DR. ALFRED L. KASTNER, Milwaukee: In regard to older children with poor appetites, I see no other conclusion to arrive at than that the three-hour feeding interval is a common cause. The school child eats at 7 a. m., comes into school and has a glass of milk at 10 o'clock and then has lunch at 12. Now, in children who are properly nourished, why impose such an extra load? It is true the child needs the extra food, but is he able to handle it in three-hour intervals?

DR. LOUIS W. SAUER, Evanston, Ill.: I am sorry not to have made observations on older children with poor appetites during illness, fever and infections. Of course, it is a well-known fact that infants in hot weather secrete less free hydrochloric acid than on cold days. I agree that it is not a good thing to give these children milk between meals. Children who will not eat breakfast should not be expected to drink milk between breakfast and the noon lunch. I am not speaking of the child with good appetite who is underweight. I am sorry not to have mentioned the work of Drs. LeWald and Kerley. Dr. Kerley, a year ago, pointed out that one of the pronounced effects of delayed emptying time is loss of appetite and that a child will not be hungry with a portion of a previous meal in the stomach. In one of his cases, the stomach was not empty for thirteen hours. If such a child eats breakfast at 8 a. m., and something is still in the stomach six hours after that, it will not eat a hearty lunch. In regard to Dr. Foote's question—sixteen out of twenty-one were of the asthenic habitus. The significance of habitus is greatly neglected in pediatrics. Many children who are frequently ill belong to the "slender" type. The stomach is normally below the umbilicus. Roentgenologists show that normal stomachs of this type may have an emptying time not of four but of six hours. For that reason they set up six hours as the normal emptying time. Normal persons of this type may have a long emptying time. Children who come into this group are not children who have food dislikes. With regard to the treatment, we made the children "free to gain," fed them on foods rich in vitamins (lettuce sandwiches, carrots, spinach and, at times, cod liver oil), and tried to get them to take a quart of milk a day, giving 8 or 10 ounces at each meal. If we found the hydrochloric acid low, we gave 1 dram of essence of pepsin with 3 drops of dilute hydrochloric acid with each meal. The two children without free hydrochloric acid are interesting in that neither of them showed free hydrochloric acid in spite of the administration of 3 drops of the dilute hydrochloric acid for a period of several months.

Preparation of Chaulmoogra Oil Derivatives.—The working details of methods used at the University of Hawaii for the preparation of certain derivatives of chaulmoogra oil are described by Dean and Wrenshall in *Public Health Reports*, June 9, 1922. The chaulmoogra oil used is obtained through dealers, and varies greatly in quality, some lots being clear and liquid at laboratory temperature, other lots being dark, muddy looking oils with large quantities of precipitated material. The differences in appearance seem to have no correlation with differences in rotation of polarized light, which is the distinguishing characteristic of these oils. The valuable oils show specific rotations around plus 50 degrees. The first step in the preparation of derivatives for therapeutic use is to break up the glycerids into glycerol and the sodium soaps of the fatty acids by saponifying the oil with sodium hydroxid under pressure. These crude mixed fatty acids are then treated in different ways, the details of which are given as noted, and the following products obtained: (1) mixed ethyl esters, (2) ethyl hydnocarpate, (3) ethyl chaulmoograte, and (4) ethyl dihydrochaulmoograte.

THE QUINIDIN TREATMENT OF AURICULAR FIBRILLATION *

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Since the report by one of us (W. W. H.[1]) in December, 1921, of eight cases of auricular fibrillation in which quinidin sulphate was administered, we have observed and treated ten additional cases. In this paper we shall present (1) a further study of the cases previously reported; (2) the details of treatment and observation in ten new cases, and (3) the results and conclusions obtained from our experience with these eighteen cases in connection with a critical survey of the literature up to the present time.

In spite of lack of complete knowledge of the pharmacology of quinidin, its indications and contraindications in practice, and the occasional reports of serious untoward effects (paralyses, embolism and death), interest in its therapeutic use continues to grow. Reports and studies in quinidin therapy have appeared so fast during the past year, especially during the past six months, that it is well-nigh impossible to keep up with the constantly growing literature on the subject. One gets the universal impression that, in spite of the accidents referred to above, it is rapidly establishing a place for itself in modern cardiac therapy. Appreciating that our knowledge of the drug is as yet most incomplete, it must be borne in mind that its use in auricular fibrillation dates back only four years, since Frey's[2] work in 1918. It is interesting in this connection to reflect, as Jackson, Friedlander and Lawrence[3] have recently pointed out, that "Witherington introduced digitalis in 1783, while the year 1922 finds us still willing to learn more than we at present know about the foxglove."

Before presenting our own cases, it may be worth while to review very briefly the subject itself and its present status. Auricular fibrillation, the most frequent serious irregularity of the human heart, may be converted, in approximately 50 per cent. of the cases, to a normal cardiac mechanism by the administration of quinidin, one of the four better known alkaloids of cinchona bark, a stereo-isomer of quinin. In a recent compilation of the literature by Oppenheimer,[4] in a total of 461 reported cases, 53 per cent. of the patients were restored to a sinus rhythm. Of our series of eighteen cases, eleven patients (61 per cent.[5]) have secured, for a time at least, a normal rhythm, and in five (27 per cent.) it has lasted three months or more. The introduction of quinidin in the therapy of auricular fibrillation dates from Wenkebach's[6] accidental dis-

* From the Medical Services and Electrocardiographic Laboratory, Michael Reese Hospital.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Hamburger, W. W.: Effects of the Administration of Quinidin Sulphate in Auricular Fibrillation, J. A. M. A. **77**: 1797 (Dec. 3) 1921.
2. Frey, W.: Ueber Vorhofflimmern beim Menschen und seine Bezeitigung durch Chinidin, Berl. klin. Wchnschr. **55**: 417, 1918; Weitere Erfahrungen mit Chinidin bei absol. Irregularitat, Ebenda **55**: 849, 1918.
3. Jackson, Friedlander and Lawrence: J. Lab. & Clin. Med. **7**: 311 (March) 1922.
4. Oppenheimer: Paper read before the American Society for Clinical Investigation, Washington, D. C., May 1, 1922.
5. Our slightly better percentage is due to the fact that eight of our cases were of the acute or paroxysmal variety and that, from a larger experience, more effective dosage and treatment were possible.
6. Wenkebach: Die unregelmassige Herztätigkeit und ihre klinische Bedeutung, Leipzig, Engelmann, 1914.

covery of the use of quinin in 1914 and Frey's work in 1918, at which time he showed the greater suitability of quinidin. Since this time a large number of papers have been contributed on this subject and have served to throw considerable light on the exact mechanism, indications and contraindications, dangers, mode of action and selection of cases.

CASES PREVIOUSLY REPORTED

Our first eight cases, reported last year, have been kept under observation, and the patients have reported back from time to time for examination and treatment.

TABLE 1.—CASES PREVIOUSLY REPORTED

Case*	Diagnosis	Duration of Auricular Fibrillation	Quinidin, Gm.	Duration of Sinus Rhythm
A. Cases in Which Normal Cardiac Mechanism Was Restored				
1. I. B. ♀	Mitral stenosis; chronic A. F.	3-4 years	1.8	11 months
2. M. B. ♂	Gen. arteriosclerosis; diabetes mellitus; chronic A. F.	Unknown	1.8	14 days
3. J. M. ♂	Mitral stenosis; chronic A. F.	2 years	3.2	6 days
4. J. K. ♂	Hyperthyroidism; acute A. F.; M. B. R. 59.4+	Paroxysmal	1.4	10 days
B. Cases in Which Auricular Fibrillation Persisted				
5. I. G. ♂	Postinfec. myocarditis; chronic A. F.; adv. heart failure	2 months	3.7	
6. S. ♂	Chronic myocarditis; chronic A. F.; adv. heart failure	2 years	2.0	
7. M. P. ♂	Postpneu. myo. and end.; mitral sten. and insuffi.; adv. heart failure; chronic A. F.	3½ years	10.6	
8. M. ♂	Chronic inter. nephritis; adv. heart failure; chronic A. F.	1½ years	24.4	

* For sex, ♂ indicates male and ♀ female.

Table 1 shows in brief the details of these cases. As stated in our original paper, only four of these eight patients (50 per cent.) secured a normal cardiac mechanism, and only one of the four has maintained a normal rhythm for any considerable period (eleven months). The remaining three, in spite of various dosages and combinations of quinidin and digitalis, have experienced frequent returns of fibrillation so that, finally, quinidinization was discontinued, as no permanent benefit could be secured. Patient 2 has died, eight months after treatment, from increasing intoxication from his diabetic gangrene. Patient 4, with hyperthyroidism (metabolic rate 51.8+) is at present undergoing roentgen-ray treatment for his thyroid hyperfunction with the expectation that, when this is controlled, quinidin therapy will be more effective.

The four cases that failed to respond to quinidin were all cases of advanced heart failure and have continued to pursue a progressively downward course. One patient has died; the remaining three are seriously handicapped in their cardiac reserve and in their ability to carry on sustained activity.

Summarizing our experience with our first group of cases after an interval of one year, it must be stated that the results are not particularly gratifying, as only 50 per cent. of the total number of cases responded, and in only 25 per cent. of these, or 12.5 per cent. of the whole, has there been a permanent result. Patient 1, whose sinus rhythm has persisted eleven months, underwent in March a gynecologic plastic operation necessitating a general ether anesthetic, lasting one hour, with no evidence of return of fibrillation. It may be recalled that this patient, at the time of the restoration of normal rhythm, showed a disappearance of right heart preponderance with coincident relief of clinical signs of heart failure.

NEW CASES

The new cases which we have to report comprise ten. Seven of these (Tables 2 and 3) responded to quinidinization with the establishment of a normal rhythm; three cases were not responsive. Of the seven responsive cases, three have maintained a normal rhythm for three months or more; the remaining four have had one or more recurrences of fibrillation. Three may be classified as acute auricular fibrillation undergoing their first attack of irregularity, and three as recurrent paroxysmal fibrillation. The contributory causes that were probably important etiologically were: acute respiratory infection, paratyphoid fever, pneumonia, menopause, hypertension, toxic goiter and generalized arteriosclerosis. The duration of the fibrillation varied from a few hours to several weeks. The amount of quinidin necessary to control varied from 0.2 to 3.8 gm.; the total amount of quinidin administered to any one patient was 23.2 gm. While it is well known that the paroxysmal type of fibrillation often ceases of its own accord, these cases were so controlled that it appeared likely that the restoration of sinus rhythm was brought about as a result of quinidin administration. It is probable, too, that the drug materially shortened the paroxysm of irregularity, for in one and the same case, in which for various reasons certain attacks were allowed to continue untreated, the giving of quinidin was promptly followed with a restoration of normal cardiac mechanism. Four of these seven cases were private cases under careful and repeated observation and control and, with the patients' intelligent cooperation and insight into their own problems, they themselves were convinced of the controlling action of quinidin. One of them, a physician, administered the capsules to himself and controlled the paroxysms of irregularity largely at his own discretion.

TABLE 2.—NEW CASES, IN WHICH NORMAL CARDIAC MECHANISM WAS RESTORED

Case	Diagnosis	Duration Auricular Fibrillation	Quinidin Necessary for Sinus Rhythm	Total Quinidin, Gm.	Duration Sinus Rhythm
9. W. S. ♂	Acute A. F. occurring 5th day; acute grip infection	1 parox. attack lasting 12 hrs.	0.4 gm.	0.6	3 months
10. M. L. ♀	Recurrent parox. A. F.; menopause; hypertension	Variable; few min. to several hours	Variable; from 0.2 gm. to 1.2 gm.	5.6	Variable; 1st attack 1 year, 2-4 months
11. M. F. ♂	Recurrent parox. A. F.; hyperthyroid; M. B. R. 72.2+	Variable; from several hrs. to 2 wks.	Variable; from 1.2 gm. to 2.0 gm.	8.4	Var.: sev. hrs. to 3 wks.; earlier attacks, sev. months to sev. years
12. H. R. ♂	Recurrent parox. A. F.; postinfec. myo.	Variable; from 1-4 days	0.2 gm.	4.0	Variable one to sev. years
13. M. C. ♂	Acute A. F.; gen. arteriosel.; chr. myocarditis; begin. heart failure	2 weeks	3.8 gm.	23.2	7 days
14. B. W. ♂	Acute A. F.; postpneum., myo. and endocarditis; mitral sten.	24 hrs.	1.2 gm.	10.2	3 months
15. B. C. ♀	Chr. A. F.; mitral sten. and regur. adv. recurr. heart fail.—8 yrs.	4 yrs.	1.0 gm.	7.4	24-48 hrs.; 7 days during contin. adm.; prompt relapse after discontinuing

There is little to be said regarding the three cases of auricular fibrillation which failed to respond to quinidin. In contrast with the nonresponsive cases of the first series, none of them were cases of advanced heart failure, although one was classified as moderately advanced and the others early heart failure. In one case, quinidin was discontinued after a dosage of 8.4 gm., covering a period of eight days, because of complaints of spots before the eyes, dizziness and ringing in the ears. In a second case, after 12 gm. had been given, quinidin was discontinued because of the production of a bradycardia varying between 40 and 52 apex beats a minute. One or two other of our patients have experienced a similar bradycardia. Curves of this patient showed a continuance of the high auricular rate with the very slow ventricular, suggesting that in large amounts over a prolonged period, quinidin does affect the auriculoventricular bundle, producing a rather high degree of partial heart block. The effect of quinidin direct on the heart muscle and on the vagus must also be considered in this connection. These patients, in spite of showing evidence of heart failure, were all cases of relatively long fibrillation, so that we conclude that this factor is probably of greatest constancy in the nonresponsive cases.

TABLE 3.—NEW CASES IN WHICH AURICULAR FIBRILLATION PERSISTED

Case	Diagnosis	Duration of A. F.	Quinidin
16. S. E. ♀	Chronic A. F.; chr. myocar. and interst. nephr.; mod. adv. heart failure	1-2 years	1st. ser. 10.2 gm. 2d. ser. 7.0 gm. Total 17.2 gm.
17. D. S. ♂	Chronic A. F.; early heart fail.; chr. myocard.	2-3 years	24.6 gm.
18. T. ♂	Recurrent parox. A. F.	Recurrent 7 years	12.0 gm.

Rather than present the details of these cases, we shall discuss certain of the more important and obscure problems in connection with a critical survey of the literature up to the present time. We shall discuss these in this order: (1) favorable cases and indications for quinidin therapy; (2) unfavorable cases and contraindications; (3) dosage and method of administration; (4) digitalis; (5) subjective symptoms, clinical value, effects on compensation and decompensation; (6) toxic effects, accidents occurring during administration, respiratory paralysis, skin lesions; (7) effect on auricular and ventricular rate, vagus, venous, arterial and pulmonary pressure, peripheral vessels; (8) changes in P-R interval, QRS complex, T wave, heart block.

FAVORABLE CASES AND INDICATIONS FOR QUINIDIN

It is generally agreed that patients with fibrillation of short duration and with relatively good heart muscle, with no signs of decompensation, are most favorable for the administration of quinidin. Bock [7] and Cheinisse [8] believe that it is particularly valuable in patients with hyperarterial tension and with peripheral arteriosclerosis. Wolferth's [9] case of hyperthyroidism showed the most striking improvement. Pardee [10] inclines to patients with relatively good heart muscle and fair compensation. Our best results have been obtained in the acute and paroxysmal varieties, although our instance of restored sinus rhythm of longest duration occurred in a chronic case in which fibrillation had been present for three or four years. Our two hyperthyroid cases responded easily to small amounts of the drug, but quickly relapsed to fibrillation, although one of them could be controlled for weeks at a time with daily small amounts of quinidin (Fig. 1). We are hopeful that reducing the hyperthyroidism by roentgen-ray treatment will result in a more permanent cure. Our experience with patients with peripheral arteriosclerosis is that, while they respond promptly, they relapse equally so, and permanent results are difficult to obtain.

UNFAVORABLE CASES AND CONTRAINDICATIONS

The literature is fairly in agreement in the fact that the most unfavorable cases are those of long duration with moderately advanced or advanced heart failure. Our experience is in accord with this, although there are many exceptions to it. Ellis and Clark-Kennedy [11] believe that those which do not respond to digitalis will not respond to quinidin. Smith [12] believes that patients with large hearts are unfavorable. Jackson, Friedlander and Lawrence, from results with experimental aconite poisoning, suggest that there may be two types of fibrillation, the early aconite poisoned animals responding, the late not. White [13] believes heart failure and long duration are unfavorable cases. Bock and Cheinisse speak of acute and recurrent endocarditis as contraindications. Thomas Lewis [14] warns against patients in whom there is any history or findings of previous embolism and patients with advanced heart failure as evidenced by an engorged, tender liver and dilated veins of the neck. While we have been fortunate in experiencing no serious mishaps, we share in general the statements of the foregoing observers. However, it is certainly difficult to predict whether a given case will be successful or not, although, in general, we now feel fairly safe in stating that the case with a single acute attack or a recurrence can usually be controlled promptly with quinidin.

DOSAGE AND METHOD OF ADMINISTRATION

All observers are using practically the same amounts of quinidin, varying from 0.2 to 0.4 or 0.6 gm., three or four times a day. Lewis recently spoke of using as a test dose 0.8 gm., the largest amount of which we know. In general, we are using frequent small doses, and find that they are as advantageous as the larger amounts. In a few recent cases we have omitted the preliminary idiosyncrasy dose, starting with 0.2 gm. every two hours with careful, frequent examinations of the patient, and find that many attacks can be controlled immediately in from two to twelve hours by this method. If such dosage is ineffectual, after a three or four day attempt, we increase the amount to 0.4 gm. every two hours. In our last cases we have been accustomed, after the establishment of sinus rhythm, to continue giving 0.2 gm. once or twice a day for a considerable period, decreasing only gradually, believing, with Eyster and Fahr,[15] that, since in most

7. Bock: Med. Klin. **17**: 1052 (Aug. 28) 1921.
8. Cheinisse: Presse méd. **29**: 748 (Sept. 17) 1921.
9. Wolferth, C. C.: Am. J. M. Sc. **162**: 812 (Dec.) 1921.
10. Pardee: Discussion, New York Acad. of Med., Nov. 17, 1921.
11. Ellis, A. W. M., and Clark-Kennedy, A. E.: Lancet **2**: 894 (Oct. 29) 1921.
12. Smith, F. M.: Quinidin in Cardiac Irregularities, J. A. M. A. **78**: 877 (March 25) 1922.
13. White, P. D.: Boston M. & S. J., Dec. 17, 1921.
14. Lewis, Thomas: Paper read before the Institute of Medicine, Chicago, May 10, 1922.
15. Eyster, J. A. E., and Fahr, G. E.: Quinidin in Auricular Fibrillation, Arch. Int. Med. **29**: 59 (Jan.) 1922.

cases the conditions tending to produce auricular fibrillation are still present even after a normal rhythm is restored, subsequent administrations of the drug are necessary to avoid recurrence. If stoppage of the drug is followed in a short time by a relapse, we start a second series of quinidin administration, continuing it practically indefinitely, meanwhile making every possible attempt to diagnose and treat the probable underlying causative disease. It is remarkable how long and uneventfully patients can take small amounts of quinidin. Several of our patients are continuing now in their second and third month taking one or two capsules (0.2 gm.) a day without apparent harm.

DIGITALIS

The rôle of digitalis has been and continues to be a much discussed one. Pardee believes there is no effect either way from its administration. Wolferth had an interesting experience in which the administration of digitalis was effective in restoring a sinus rhythm temporarily; later, quinidin was not successful. Robert Levy [16] believes that digitalis is not essential to successful treatment. Fred Smith feels that it is contraindicated, as both digitalis and quinidin may produce heart block. White concludes that digitalized cases are more likely to respond, but that it is better not to give the two together. Lewis believes that there is little difference in the auricular response, although possibly the undigitalized cases may be a shade more likely to respond than the digitalized; but he strongly feels that digitalis effects are desirable, especially in the rapid type of fibrillation, and shows graphically in one and the same patient the relative slowing of the ventricular rate in the digitalized cases. We have had three interesting experiences. To one patient, in whom, in spite of evident decompensation (cyanosis and orthopnea) digitalis was certainly indicated, we gave quinidin first without digitalis, and a prompt restoration of sinus rhythm occurred, with a simultaneous disappearance of signs of heart failure. The second case, reported last year, showed without digitalis and with small amounts of quinidin a clearing up of early heart failure and disappearance of evidences of right heart embarrassment (right preponderance). In the third case, an exophthalmic goiter patient with an extremely rapid type of fibrillation, we had great difficulty in maintaining, without digitalis, a normal rhythm for more than a few hours until a time when he was completely digitalized, after which the same or even smaller amounts of quinidin were successful in holding his heart regular for three weeks. As a result of these experiences, our practice at present is to give quinidin at once in a properly selected case without preliminary digitalization, in spite of a moderately rapid heart and signs of early or moderately advanced heart failure. If, on securing a normal rhythm, the ventricular rate remains over 100, or if the signs of heart failure have not disappeared entirely, or if the restoration of a regular pulse is of short duration with frequent and early tendencies to relapse, we then digitalize the patient in the usual way.

SUBJECTIVE SYMPTOMS; CLINICAL VALUE; EFFECTS ON COMPENSATION AND DECOMPENSATION

The symptoms mentioned most frequently in the literature as due to the administration of quinidin are palpitation, weakness and dizziness, dyspnea, oppression and tachycardia. A few have noticed epigastric distress, ringing in the ears, headache, nausea, hemoptysis and hot flashes. Some of these complaints have been voiced by our patients; others have noticed no subjective effects of any sort.

From the standpoint of the effect on subjective complaints, that is, the value of the treatment from the patient's standpoint, the literature contains such statements as "no striking change"; "no more than ordinary rest and diet"; "relief experienced in slow type of fibrillation"; "relief from palpitation"; "general improvement." Lewis makes the interesting observation that, although several of his patients showed no immediate improvement and experienced no immediate change with restoration of normal rhythm, they experienced later improvement in strength, in general well-being and in ability to carry on. In our experience, the private cases have experienced decidedly more personal satisfaction from the change than the ward cases, not only patients with exophthalmic goiter but also those with acute fibrillation following infection; they are extremely grateful when the irregularity has been stopped. Our easy-going, phlegmatic patients noticed little if any change; our nervous, apprehensive, frightened ones were intensely frightened during the attack and strikingly relieved when it was over, and insisted on having their capsules near them day and night. One patient with goiter, whose attacks often come at night, puts his capsules at his bedside and helps himself when his attacks rouse him from his sleep.

Several men have reported that quinidin caused decompensation in a previously well-compensated fibrillating heart; or, at least, with the restoration of sinus rhythm by quinidin, decompensation occurred. We have fortunately had no such experience.

TOXIC EFFECTS; ACCIDENTS OCCURRING DURING QUINIDIN THERAPY (EMBOLISM); RESPIRATORY PARALYSIS; SKIN LESIONS

Wilson and Herrmann [17] group the accidents occurring under quinidin therapy under six headings: (1) increased cardiac failure; (2) apparent respiratory paralysis; (3) embolism; (4) failure of the sinus node to resume function; (5) depressed intraventricular conduction; (6) increased ventricular rate. Embolism is, of course, the most serious, has resulted in several sudden deaths, and has caused infarcts in the kidney, lung, spleen and brain. It has caused transitory paralyses.

We have been fortunate up to the present time in having no embolic cases, at least none that we recognized. We have had several scarlatiniform rashes, dizziness and ringing in the ears, spots before the eyes, and sudden rise of temperature to 101.6 with severe headache, diarrhea and abdominal pain. Such results as these are frequent findings throughout the literature. The less serious findings are undoubtedly cause for immediate discontinuance of the drug. We fully agree with Sir Thomas Lewis that any evidence of embolism is an absolute contraindication. It is striking that several clinics report a much greater number of these accidents than others. In this connection, it might be recalled that embolism is not an infrequent occurrence in fibrillation without quinidin; witness the reports of paralysis, infarcts, hemoptysis, etc., in the older literature.

16. Levy, Robert: Proc. Soc. Exper. Biol. & Med. **19**: 88, 1922.

17. Wilson, F. N., and Herrmann, G. R.: Cerebral Embolism Following Arrest of Auricular Fibrillation by Quinidin, J. A. M. A. **78**: 865 (March 25) 1922.

EFFECT ON AURICULAR AND VENTRICULAR RATE, VAGUS, VENOUS, ARTERIAL AND PULMONARY PRESSURE, AND PERIPHERAL VESSELS

Acceleration of the ventricular rate (ventricular tachycardia) is a frequent experience in patients undergoing quinidin treatment. Drury and Iliescu,[18] by using sternal leads, have shown clearly the progressive depression of auricular rate, falling sharply from a single dose and only very gradually resuming its original rate. We have taken sternal leads in connection with the regular leads in a number of cases, and have estimated the auricular rate (Fig. 3). Table 4 shows the typical result of such estimation, showing

TABLE 4.—REGULAR AND STERNAL LEADS, CASE 11

Date	Hour	Leads	Auricular Rate	Ventricular Rate	Rhythm
3/7/22	8 p.m.	Regular before quinidin	461 (approx.)	171	Irreg. (fibrillation)
3/8/22	8 a.m.	0.2 gm. Q.			
	10 a.m.	0.2 gm. Q.			
	11 a.m.	Sternal	428 (approx.)	141	Irreg. (fibrillation)
	12 noon	0.2 gm. Q.			
	1:40 p.m.	Sternal	260	130	Reg. (flutter)
	2 p.m.	0.2 gm. Q.			
	3 p.m.	Regular	260	130	Reg. (flutter)
	4 p.m.	0.2 gm. Q.			
	5:30 p.m.	Regular	240	120	Reg. (flutter)
	6:30 p.m.	0.2 gm. Q.			
3/9/22	8:00 a.m.	0.2 gm. Q.			
	9:45 a.m.	Regular	100	100	Normal (S. R.)
	4:30 p.m	Regular	75	75	Normal (S. R.)

the gradual depression of an original auricular rate of 460 during fibrillation to 260 during flutter, and finally to 75 with the restoration of sinus rhythm. In contrast to Lewis' findings, the ventricular rate in this case likewise progressively decreased, as it has in one or two other cases, resulting finally in a fairly high grade bradycardia. This rapid early irregularity is usually followed by a rapid regular rhythm (auricular flutter), the "*Transition* rhythm" of Eyster and Fahr. The rate estimations in three cases, given in Table 5, show the initial ventricular, the transition rhythm and the final sinus rhythm rates.

TABLE 5.—RATE ESTIMATIONS IN THREE CASES

Initial Ventricular Rate	Rate of Transitory Rhythm	Sinus Rhythm Rate
111	130	65
85	133	73
94	107	75

In regard to the effect on the vagus, White believed that quinidin has a paralyzing effect, while Jackson, Friedlander and Lawrence believe that the vagus endings are not paralyzed and that the inhibitory action, if anything, is increased. Lewis, Drury, Iliescu and Wedd[19] conclude that it causes a partial, rarely complete paralysis of the vagus. From our experiences we have no evidence as to the vagus effect unless the acceleration of ventricular action under quinidin can be offered as evidence of such action. Eyster and Fahr found the venous pressure increased as a result of the drug. Cohn[20] found a fall in arterial blood pressure, and the Cincinnati workers describe a general fall in the systemic blood pressure. Dilatation of pulmonary arterioles and capillaries resulting in a fall in pulmonary pressure has been described, as well as dilatation of peripheral vessels from direct action on the capillaries.

CHANGES IN P-R INTERVAL; QRS COMPLEX; T WAVE; HEART BLOCK

Levy found the P-R interval lengthened in one patient. White found it slightly lengthened. Wolferth believes that it increases above the normal with the restoration of sinus rhythm, but that this is not necessarily due to quinidin. We have found no constant effect, but have one strikingly prolonged interval in an unfavorable case. Several observers have noted a lengthening in the QRS complex, with the production of transient intraventricular block and changes in R and S. Several of our cases have shown slight prolongation and notchings in the initial complexes, and in two cases inversion of T. The latter is in accord with several observers in this country. White records one case of complete heart block. Lewis concludes that it depresses auriculoventricular conduction as part of the uniform influence of the drug on the rate of conduction in all three tissues—auricle, ventricle and junctional tissues.

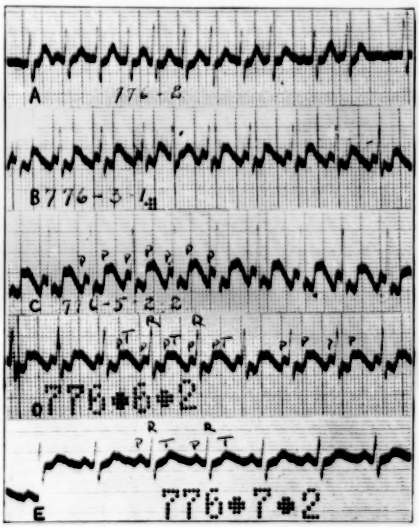

Fig. 1 (Case 11, man, aged 54).—Recurrent paroxysmal auricular fibrillation; change from auricular fibrillation to flutter and to sinus rhythm with slowing of auricular and ventricular rates; exophthalmic goiter. *A*, March 7, 1922, 8 p. m.: auricular rate, approximately 461; ventricular rate, 171; fibrillation; no quinidin. *B*, March 8, 11 a. m.: approximate auricular rate, 286; ventricular rate, 130; fibrillation; 0.4 gm. quinidin. *C*, March 8, 3 p. m.: auricular rate, 260; ventricular rate, 130; flutter; 0.8 gm. quinidin. *D*, March 8, 5:30 p. m.: auricular rate, 240; ventricular rate, 120; flutter; 1 gm. quinidin. *E*, March 9, 9:45 a. m.: auricular rate, 100; ventricular rate, 100; sinus rhythm; 1.4 gm. quinidin.

SUMMARY

It is difficult to reach final conclusions regarding the exact rôle of quinidin in auricular fibrillation. This

18. Drury, A. N., and Iliescu, C. C.: Brit. M. J. **2**: 511 (Oct. 1) 1921.
19. Lewis, Thomas; Drury, A. N.; Iliescu, C. C., and Wedd, A. M.: Heart **9**: 55 (Dec. 14) 1921.
20. Cohn, Alfred: Discussion, N. Y. Acad. of Med., Nov. 17, 1921.

difficulty arises from several sources, because (1) of our comparatively short acquaintance with the phenomenon; (2) our lack of knowledge concerning the exact mechanism and underlying cause of fibrillation itself, and (3) the new experiences and findings from each fresh case undergoing treatment.

Stating first our general impression, in spite of our relatively few cases of permanently established sinus rhythm (27 per cent.), we feel that quinidin is establishing a permanent place for itself in cardiac therapy and that no case of auricular fibrillation should be treated at the present time without at least thoughtful consideration of its therapeutic possibilities. Starting, then, from this general favorable impression, which are the cases that are most likely to respond, either permanently or temporarily? Judging by our experience up to the present time, we feel that patients with acute fibrillation or recurrent paroxysmal fibrillation are those most likely to react favorably and promptly to

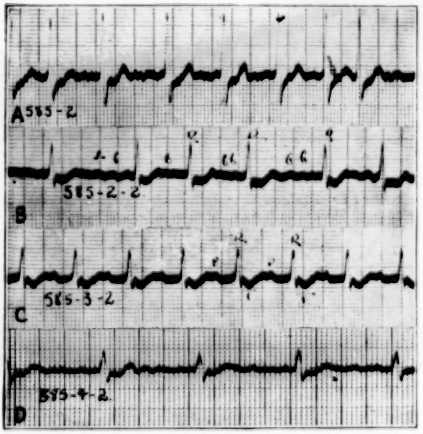

Fig. 2 (Case 15, woman, aged 50).—Chronic auricular fibrillation; mitral stenosis; regurgitation; advanced recurring heart failure. Quinidin response brief; early relapse to fibrillation; prolonged P-R: example of contraindication. Following 0.2 gm., temperature, 101.6 F. Died suddenly one week later. *A*, Aug. 19, 1921: rate, 94; no quinidin. *B*, August 23: rate, 75; no quinidin. *C*, September 2: rate, 107; 2.6 gm. quinidin. *D*, Feb. 8, 1922: rate, 79; total quinidin, 7.4 gm.

quinidin. While in these patients fibrillation often ceases spontaneously, administration of the drug controls the paroxysms more promptly and without danger. The duration of the response is more likely to be permanent in acute self-limited illnesses (acute respiratory infections, pneumonia) than in cases of hyperthyroidism, generalized arteriosclerosis, etc.

The next most favorable type of case is the patient with fibrillation of relatively short duration without signs of heart failure or evidence of embolism, in whom the administration, so far as we know, is unattended with serious consequences.

The third group, in which the outlook for response is probably as good as the second, but in which the possibilities of danger are somewhat greater, comprises those patients with signs and symptoms suggestive of beginning or early heart failure (cyanosis, dyspnea, palpitation and tachycardia), but without the signs of advanced heart failure (engorged tender liver, pulsating veins of the neck, dropsy, etc.). In these the response is often remarkable. These cases suggest that the cyanosis, dyspnea and palpitation are due to the mechanical effects of the rapidly beating ventricle, and not to ventricular muscle failure.

We come now to the fourth group, the unfavorable cases or those in which quinidin is absolutely contraindicated. They may be listed briefly as those patients suffering with moderately advanced or advanced heart failure, signs or history of embolism, acute or subacute endocarditis, auriculoventricular or intraventricular block, angina pectoris, coronary disease, idiosyncrasies for quinin and its derivatives, or prolonged chronic fibrillation. In these patients, the results of quinidinization are not sufficiently striking to justify the potential risk involved.

The drug should not be given without a careful history and complete examination of the patient. If possible, a preliminary electrocardiogram should be made, for without it there must always exist some uncertainty as to the exact type of irregularity or the presence of additional irregularities (extrasystoles), the relative balance of the right and left heart, and the integrity of the ventricular muscle (disturbance in ventricular conduction). The patient should be put at complete rest in bed, given a preliminary idiosyncrasy test of 0.2 gm., and then starting the following day the same amount every two hours with continuous observation and control, including the electrocardiogram if possible. Digitalis should be given later if the ventricular rate remains high, if heart failure persists, or if frequent relapses to fibrillation occur.

CONCLUSIONS

1. Quinidin sulphate has been administered to eighteen patients suffering with auricular fibrillation. In eleven (61 per cent.) a normal cardiac mechanism has been established, which, in five (27 per cent.), has persisted three months or more. One patient has maintained a sinus rhythm uninterruptedly for eleven months.

2. Cases of acute fibrillation or recurrent paroxysmal fibrillation are most amenable to quinidin treatment. In these patients the duration and frequency of the paroxysm can be promptly controlled without undue risk.

3. The following is offered tentatively as a means of selecting cases of auricular fibrillation in the order of their decreasing suitability for quinidin treatment: (*a*) patients with acute fibrillation or recurrent paroxysmal fibrillation; (*b*) patients with fibrillation of short duration without history or findings of heart failure or embolism; (*c*) patients with signs and symptoms of early or apparent heart failure, but without evidence of advanced heart failure.

4. In patients with moderately advanced or advanced heart failure, and history or findings of embolism, endocarditis, heart block, angina pectoris, coronary disease, quinin idiosyncrasy or prolonged chronic fibrillation, quinidin is contraindicated.

5. Equally good results are obtained with small amounts of quinidin (0.2 gm.) given frequently (every two hours), to be continued in most cases once or twice daily after restoration of sinus rhythm.

6. Quinidin may usually be given at once without preliminary digitalization. If, after restoration of

normal rhythm, the ventricular rate remains high, signs of heart failure continue, or frequent relapses to fibrillation occur, digitalis should be subsequently administered.

ABSTRACT OF DISCUSSION

DR. FRED M. SMITH, Chicago: Every one has been impressed by the remarkable action of quinidin in auricular fibrillation. The beneficial effects of this drug in this disorder are not, however, as promising as it was thought they might be. It is apparently generally agreed that quinidin will ultimately be established as a valuable drug in the treatment of certain cardiac disorders. So far the results seem to be much better in instances of auricular fibrillation of short duration in which the heart is well compensated. A few fatalities have been attributed to the administration of quinidin. In most instances, cardiac failure or emboli have been responsible for the unexpected results. Lewis recommends that patients be well digitalized prior to the administration of quinidin. His reason for this is to ward off the possibility of embolic accidents. At present, it would thus seem that the dangers incident to this method of treatment would not permit its being recommended to the general practice. Observations would seem to indicate that quinidin may, perhaps, be of value in the treatment of permature contractions. It is commonly known that the premature beat may be a very disturbing condition to the patient and often not influenced by the measures that have been employed in the past. In several instances, we have obtained very satisfactory results with quinidin in persons who did not respond to other forms of medication. I well recall one patient who came to the clinic because of an irregular action of the heart that had occurred daily for an interval of more than five months. His general condition was very poor. He was unable to continue his work. He had lost 20 pounds (9 kg.) in weight, was unable to sleep and had a poor appetite. He was instructed to take 3 grains of quinidin three times a day. The irregularity was eliminated. He began to sleep, regained his appetite and in one week gained 10 pounds (4.5 kg.) in weight. At present his weight has increased more than 25 pounds (11.3 kg.), he is back at his former work and feels better than he has in months.

DR. JOHN WYCKOFF, New York: Dr. Hamburger said that quinidin was not indicated in cases of severe, long standing decompensation. I agree, but I think there are two reasons why it is contraindicated: first, as Dr. Hamburger has said, because in this type of case quinidin is most dangerous; although it is interesting to note that in the twenty-four cases of auricular fibrillation which I have observed the only death occurred in a patient who had no symptoms of heart failure at the time he received quinidin; and, second, because the clinical improvement after quinidin is very much less than that which we obtain after digitalization. It has been our practice to place patients with auricular fibrillation with heart failure into two groups. In one group, we gave digitalis first; and after we had obtained full digitalis effect, we gave quinidin. In the other groups, we gave quinidin first, followed later by digitalis. Patients were given a preliminary rest period of seven days with limited fluid intake, so that these factors could be eliminated as a cause of improvement. They were ordered rest for a week, and then given quinidin. Though some of these patients resumed sinus rhythm, none of them showed further clinical improvement. The other group were given quinidin first. Those who returned to normal rhythm usually showed some slight clinical improvement. After seven days' continued rest with the normal rhythm, these patients were digitalized, and every one of them showed marked further improvement. For example, one patient with a ventricular rate of 160, with signs of advanced heart failure, after receiving quinidin, resumed a normal rhythm with a ventricular rate of 90. The only clinical improvement was that palpitation disappeared. The patient was given a further rest for one week. During this time, dyspnea and orthopnea persisted and there was no loss of weight. He was then digitalized with an immediate clearing up of his symptoms. He passed 4 liters of urine in the first twenty-four hours and lost 15 (6.8 kg.) pounds weight in the first forty-eight hours. This, I believe, shows that quinidin cannot take the place of digitalis in this type of case.

DR. ARTHUR E. STRAUSS, St. Louis: Quinidin has certainly come to be experimented with, even if it has not come to stay. The use of quinidin is still in an experimental stage. As with all drugs, it must undergo a period of study and our final analysis must depend on this study. Dr. Hamburger has emphasized that quinidin apparently is most effective in the cases of transitory auricular fibrillation. In that connection, I think it important to say that we are not certain that all so-called chronic fibrillations do not begin first as periods of transient fibrillation. Certainly, if one takes careful histories, one will often see cases develop as transient fibrillation; and it is not infrequent to see such cases develop later into the chronic forms. If quinidin is valuable in the temporary fibrillation, it is valuable in the chronic fibrillations at the onset. Dr. Hamburger has stated that it is often

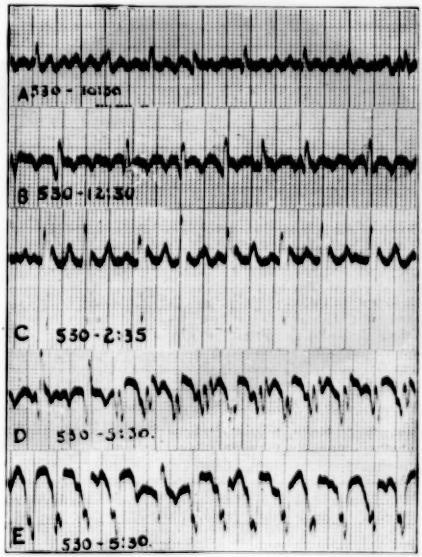

Fig. 3 (Case 5).—Sternal lead curves, showing effect of quinidin on auricular and ventricular rate; Nov. 28, 1922: *A*, 10:30 a. m., no quinidin; auricular rate, 424; ventricular rate, 124. *B*, 12:30 p. m. after 0.1 gm., auricular rate, 382; ventricular rate, 150. *C*, 2:35 p. m., after 0.2 gm., auricular rate, 363; ventricular rate, 124. *D*, 5:30 p. m., after 4 gm., auricular rate, 375; ventricular rate, 230.

necessary to continue the administration of quinidin. We are not yet certain of the effects of the long-continued use of quinidin. We have seen quinin used in malaria for long periods of time, and in the majority of cases we have noted no harmful effects. However, in a number of my cases of fibrillation in which quinidin has been used for long periods the patients have complained of weakness when they had no symptoms of idiosyncrasy to quinidin. Therefore, there is some doubt as to how long quinidin can be continued. It must further be emphasized that there are some dangers incident to the administration of quinidin. Therefore, it must be used only after due consideration and with the idea that it should be as carefully controlled as are all experiments. One final word, as to the reason we should not use quinidin in the decompensated hearts. We know that digitalis in the decompensation of fibrillation is almost invariably beneficial. We know that quinidin is beneficial in restoring normal rhythm

in no more than 60 per cent. of cases on the average. That alone is sufficient reason for using digitalis in the decompensated fibrillators, rather than quinidin.

DR. ALEXANDER LAMBERT, New York: I have tried quinidin in thirty cases. In one patient, the fibrillation stopped and the rate fell to normal. In all the others, with careful electrocardiographic control, there was no effect.

DR. L. F. BISHOP, New York: Dr. Hamburger has probably made the best observations and written the best literature on quinidin. So that, in discussing his paper, I do not wish to add to the experimental side of it, but rather to give my own impressions founded on a rather unusual group of patients. For a number of years, I have been using the electrocardiograph in private practice, and I have instructed my patients to come to the office when they have palpitation and have a picture taken of the heart beat. Thus, I have accumulated a number of examples of temporary fibrillation which did not recur again for a long time or did not recur at all. It seems to me that a very important element in appraising the value of quinidin is a knowledge of the natural history of fibrillation. I believe that nearly every example of fibrillation, except in the very advanced broken-down heart, begin in this way. The vast number of fibrillators commence by short attacks which become more frequent and last longer. It is almost a joke on medical science that the best example of therapeutic effect should be disturbed by the introduction of a new treatment. There is no treatment in all medicine as brilliant as the treatment of fibrillation of the auricle with digitalis, and I would say as a matter of experience that the patients do not feel any better when they are treated by quinidin than when they are treated by digitalis. In other words, the chronic fibrillator carries fibrillation comfortably if he takes enough digitalis or if he develops heart block which balances the fibrillation. I have seen persons who have continued very well with fibrillation for fifteen years or more. There is no doubt that there often exist clots in the paralyzed auricle in fibrillation, and it is cerainly dangerous to restore the contraction of that auricle if it is going to throw out an embolus which may kill the patient. I do not believe that quinidin is a valuable general heart tonic, and I believe that men in general practice will do well if for the present they leave the use of quinidin to men who are experimenting with it in hospitals. I think it is unwise to use it in ambulatory patients in private practice.

DR. WALTER W. HAMBURGER, Chicago: I agree with Dr. Bishop in the main. I think his warning in the advanced cases should be emphasized. The real danger is, of course, embolism. If there is any sign or history of embolism, quinidin should not be given. One of my patients is a surgeon who has had paroxysmal attacks of fibrillation for fifteen years. He gets attacks once a year or so, sometimes while operating; once while swimming, and the last time while working in his garden. The attack last year lasted about a week and was associated with severe anginal pains. He was worried about it and was quite ill. After a week's rest in bed, the fibrillation stopped of its own accord, and he has had no attack until a week ago. I immediately gave him 3 grains (0.2 gm.) of quinidin and another dose in two hours. Within three hours this attack was over; and he is confident the drug shortened the attack. Likewise in the paroxysmal attacks of exophthalmic goiter, quinidin undoubtedly controls the attacks. It should not be given to ambulatory patients, and it should not be given as a routine until we know much more about it than we do at the present time. Embolism occurs in fibrillation without quinidin and sometimes without the establishment of a normal rhythm.

Purpose of Operation for Epilepsy.—In operating on epileptics, and in choosing cases for operation, we should like to have a clear idea of the purpose of the operation, based on some reasonable conception of that relationship. The surgeon who merely removes a disk of bone from the cranium of an epileptic patient places himself on a level with the practitioner of the stone age, the marks of whose handiwork on the skulls, probably of the epileptic or the insane, are to be seen in museums of ethnology.—Percy Sargent, *Brain* **44**:314 1921.

THE CAUSE AND RELIEF OF ACUTE INTESTINAL OBSTRUCTION*

CHARLES H. MAYO, M.D.
ROCHESTER, MINN.

Ileus is one of the most serious conditions that confront the medical attendant, since if it is not relieved death is inevitable. In order to lower the death rate in such conditions, much depends on early diagnosis, judgment and promptness of action. Relief is by no means possible in all cases; for instance, there is necessarily a high mortality in cases of mesenteric embolism and thrombosis. Therefore, the discussion of the subject of acute intestinal obstruction, from time to time, is of value, not so much for the older practitioners as for those who have more recently entered the profession, so that they may acquire knowledge without encountering the tragedies which fixed the memory of such conditions in the minds of those long in practice.

Cases of acute intestinal obstruction may be regarded as falling naturally into four groups: (1) apparent obstruction, really intestinal stasis, a reflex symptom occurring with slight abdominal distention, the pulse and temperature changes being such as are caused by the primary lesion, which is often renal; (2) the obvious hernia; (3) acute obstruction from an intra-abdominal lesion, and (4) postoperative obstruction.

The obvious hernias, inguinal, femoral, umbilical and ventral, which formerly caused a considerable proportion of obstructions through strangulation, have now largely been taken from this group, as even laymen appreciate the safety of modern surgery over that of a few decades ago. Hernia repaired at an elective period prevents the high percentage of strangulations formerly seen, when a reasonable fear of surgery led to prolonged taxis which often aided in the development of gangrene. The wasted opportunity, added to the seriousness of preantiseptic surgery, gave a high mortality which resulted in making acceptable this vicious circle of delay. Gangrene, or wet death of tissue, especially abdominal, and when sepsis is possible, furnishes toxins which are most difficult to counteract without the removal of the destroyed tissue or without adequate drainage.

Obstructions within the abdomen are those which cause the greatest apprehension, as there are added difficulties of diagnosis, some of which have been overcome by fluoroscopic observation or roentgenograms revealing obstructions after the opaque material has been given by mouth or by rectum. Volvulus from the twist of an extra long mesentery, usually of the sigmoid, produces not only obstruction but also the toxins of tissue death. Various forms of internal hernia, beneath bands, through congenital or unnatural mesenteric openings or through the diaphragm, usually cause degrees of partial, chronic, rather than acute, obstruction, which, however, may suddenly supervene. A second form of toxin concerning which much has been written is still under discussion. It is observed in obstructions high in the jejunum, blocking the duodenum, and, although the exact cause of retention is not always known, the condition is recognized. Such an obstruction around the duodenojejunal juncture, with paresis and dilatation of the duodenum, may cause

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

alkalosis with tetany, in which there is loss of the chlorids and a great general loss of calcium which chokes the renal tubules. This is most serious and is attended by vomiting of green fluids having but little odor. At first, the vomitus is usually watery and contains undigested food particles, and later bile; but the green vomitus probably originates largely in the upper duodenum. In obstruction of the jejunum or ileum, the green vomitus may be noted the second day, followed later by regurgitant brown and darker colored fecal or foul smelling fluids. The true toxin of pancreatic and duodenal ferments is most difficult to counteract; but relief is obtained or life is prolonged by removing the fluid at regular and frequent intervals with a stomach tube. The mortality is high because efforts to relieve the obstruction surgically are made late. The operation must drain the duodenum below by jejunostomy and a tube passed to the duodenum, or through the stomach, by gastrostomy and a tube through the pylorus, or by duodenojejunostomy.

Obstruction of the stomach at the pylorus causes death from inanition, yet if fluids can be supplied subcutaneously, by rectal tube or nutritional jejunostomy tube, life can be prolonged for a considerable period. Obstruction below this point becomes serious early because of the toxemia, although danger of this is less acute, the lower down the obstruction occurs; and if the obstruction is in the large bowel, several days may be added to the possible period of surgical relief over that if the obstruction is in the small intestine. In the latter case, the later the operation, the higher the mortality for any given procedure. After the first day each hour increases the danger of the condition. The toxemia then from colonic obstruction is of less relative importance than perforation, peritonitis and inanition, if the stomach is kept empty by regular tubation.

Intussusception, with its sudden onset, cramps and pain, with blood and mucus, may often be located by a palpable tumor, especially in children under 1 year of age, among whom from one third to one half of such conditions are found. In adults intussusception is often started by a tumor, benign or malignant, of the small intestine. The papilloma or adenoma becomes grasped in peristaltic action, the bowel being drawn in behind as it moves forward within its lumen, usually thus producing a tumor of palpable size. An inverted Meckel's diverticulum may act in the same way, or a stiff infected area on the cecum around the base of the appendix may become the invaginating head. Operations are rarely performed early enough that the intussusception may be milked back, and it is usually necessary to perform some degree of resection of the bowel and intestinal anastomosis. Gross tuberculosis in the small or large bowel occasionally causes complete obstruction following a series of chronic, recurring incomplete obstructions. In the large bowel, malignancy accounts for the great majority of these conditions; the obstruction is rarely due to the pressure of tumors except those that are usually obvious or palpable; and even in cancerous obstruction, in most instances, there are recurring attacks of incomplete obstruction which are characterized by the passage of blood streaked mucus before it becomes complete. Sudden, severe pain with shock usually signifies the completion of obstruction, especially if due to a twist or to mesenteric thrombi or emboli, the latter, as a rule, being secondary to endocarditis.

Fig. 1.—Ileostomy with a rubber tube which passes from the lumen of the intestine through the intestinal wall, omentum and abdominal wall.

In hernia, gangrene, volvulus or vascular obstruction, there is usually a rapid increase in the leukocyte count. A large gallstone may ulcerate through the gallbladder and duodenal walls, and, after passing through the upper intestine, cause a block in the lower ileum. While a previous history of probable gallstone disease may be elicited after operation, indication for exploration in acute ileus will continue, and the procedure will disclose many causes of obstruction that are relievable and some that are unrelievable. Promptness of action is essential in making an exact diagnosis of the cause.

In many years of active surgical work I have not seen death occur as the result of an unnecessary exploration. I have seen many patients saved and some die of disease, but many died solely because exploration was undertaken too late.

TREATMENT

Most patients are moribund or nearly so at the time procedures are undertaken for the relief of obstruction of the large bowel. If the obstruction is the essential feature, I should warn against any endeavor to make the operation other than a life-saving drainage procedure, as colostomy, enterostomy or appendicostomy. The last is of little value and becomes absolutely dangerous, unless the appendix is large and patulous and will admit the passage of a large catheter without tension; otherwise cecostomy is indicated.

Exploration must be made to determine whether or not the obstruction is malignant or is due to congenital diverticulitis. Sometimes this is impossible because of adhesions and infections. Acquired diverticulitis is rarely so small in area or confined to so few or to such small pockets that the diverticula will not show in the barium shadow. True congenital diverticula are more rare, resemble malignancy and may even develop malignancy. If the condition is malignant, examination of the liver, glands and intestines should be made in order to ascertain whether future operation is advisable and just what procedure should be carried out.

An endeavor to make the primary operation complete, with removal of the growth, probably doubles the danger over that of a two-stage procedure.

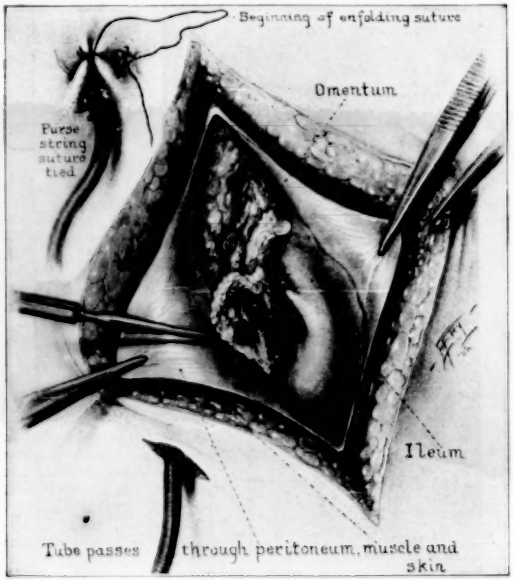

Fig. 2.—Abdominal wound showing position of rubber tube in relation to the ileum in its course as it passes through the omentum and abdominal wall.

Obstruction following operative procedures such as gastro-enterostomy, or the removal of pelvic infections is a real tragedy. While we blame the patient and the medical attendant for delay in calling council in the obscure cases of obstruction, the same delay occurs in hospitals in postoperative cases, and there is a lack of promptness of action, because of the hope that the obstruction is partial and will "clear up tomorrow."

In diagnosing localized peritonitis with the stethoscope, one may hear some tinkling movement of fluids and gases which is not noted in general peritonitis with attendant obstruction from paresis. General peritonitis is accompanied by an even distention, as compared with the irregular distention accompanying peristaltic activity of the stomach and small intestines, which is more manifest the lower the obstruction.

When complete obstruction supervenes, several small, loose, natural, but painful, movements may occur, and there is violent peristaltic action above in the endeavor first to overcome the obstruction, and failing in this to reverse peristalsis and empty the bowel contents into the stomach. Usually vomiting and rarely dilatation occurs. The latter doubles the danger if unrecognized. Therefore, the use of the stomach tube is the most valuable test we have for the purpose of determining the condition of the stomach and the amount of intestinal contents therein, and it must be used repeatedly to prevent dilatation. I should prefer to see a stomach tube rather than a stethoscope hanging around the neck of my surgical intern.

If local obstruction occurs following gastro-enterostomy, turning the patient on his face or on the left side sometimes aids in the passage of gastric contents into the intestine, probably because the opening is on that side, or possibly because of a change in circulation of the superior mesenteric vessels. In postoperative obstruction, if the abdomen is opened within twenty-four or thirty-six hours after the beginning of symptoms, the filmy adhesions causing kinks or twists can be separated with little difficulty, and with immediate benefit. Later, but little exploration is advisable for the purpose of ascertaining the cause or exact location of the obstruction, and enterostomy, as advised by Nélaton, should be made for relief. If the obstruction has followed pelvic operation, an ileostomy may afford marked relief; a high obstruction demands jejunostomy for drainage or for nutritional purposes, and if the obstruction follows a gastro-enterostomy, the passage of a catheter into the stomach and down the jejunum through the gastro-enterostomy will accomplish the same results without narrowing the lumen of the jejunum. In the presence of tetany, the tube must traverse the duodenum, being passed through the pylorus, and the patient saturated with lime.

Early operation may be performed by reopening the abdominal incision. Operation for obstruction after five days is best performed through a separate incision (Figs. 1 and 2), as the cause of obstruction may be infection in the primary wound, with attachment and kink of the bowel at the infected point, and reopening the incision may spread the infection within the abdomen. This may be prevented by working through a new incision. The enterostomy tube for drainage or nutrition should also be passed through the omentum; and if infection was the cause of the trouble, the tube should be brought through a separate perforation of the abdominal wall at the point of election, permitting a better closure of the working incision. This layer of omentum serves the same purpose as does the cellulose layer in the outer wall of battleships, closing the opening and preventing leakage after removal of the tube. It also gives greater freedom than a direct adhesion of the intestine to the abdominal wall permits. Such operations should be performed as far as possible under local anesthesia, or, in exceptional cases, under combined local and general anesthesia.

In operations for relief of obstruction, it is often advantageous to be able to distinguish the proximal from the distal end of a loop of bowel. Monk has suggested that the bowel be held in line with the spine, the thumb and finger enclosing the intestine. If they are slipped down the mesentery, and if they pass directly to the mesenteric attachment without being reversed, the upper end is known to be proximal. In order to distinguish the part of intestine to which an individual loop probably belongs without handling a great part of it, one should remember that the jejunum is much thicker and has a larger lumen than the lower ileum; also, the upper, thicker bowel has a thinner mesentery with translucent spaces, and there is much fat in the mesentery of the ileum which becomes thicker nearer its termination.

ABSTRACT OF DISCUSSION

DR. GEORGE W. CRILE, Cleveland: Dr. Mayo has covered the subject, but I wish to emphasize three points which are most important: 1. Intestinal obstruction demands immediate action, and yet the most careful and gentle action compatible with the relief of the obstruction. It is essential not to do too much. 2. It is extremely important in these cases to build up the water equilibrium of the patient who has been vomiting and has not been absorbing water. Large amounts of water, even 7,000 c.c., subcutaneously, are indicated the first twenty-four hours. 3. In order that the patient may have the proper oxidation within the tissues of the body, it is important, unless the circulation is good, to give a blood transfusion, and to give it in advance of the indication of failure of the patient's organism. If necessary, morphin should be prescribed. I am not afraid of giving large doses of morphin after the obstruction is relieved.

DR. C. H. MAYO, Rochester, Minn.: Twenty-five or thirty years ago appendicitis was discussed at every meeting of the American Medical Association. Ochsner, Deaver, McBurney, Murphy and others did a great deal to show that operation for appendicitis is safe in the first twenty-four hours, and that the danger is in the second, third and fourth days. Ochsner's method of treating appendicitis, seen too late for a safe early operation, and too early for a safe late operation, saved many hundreds of lives. It appears to me that the mortality from appendicitis is greater today than it was twelve years ago, when we stopped discussing the subject. The important point to teach the younger men in the profession is that no time should be lost in examining such patients and in operating while it is safe to do so, instead of waiting for thirty-six or forty-eight hours. Appendicitis is easily handled if it is attended to early. A patient will never be lost because of a necessary exploration, and many may be saved.

Excessive Accident Fatalities in United States.—The statistical bulletin of the Metropolitan Life Insurance Company announces that the number of deaths from accidents in the United States is twice as high in proportion to the population as that prevailing in England and Wales. In the year 1920, which was characterized by lower accident rates than any year in the decade, there were 30,000 more deaths than would have been reported if the death rates of England and Wales had prevailed. For the entire country, this means an excess of nearly 37,000 deaths. The subjoined table presents the death rates per hundred thousand from principal external causes of death, 1920, in the United States registration area and in England and Wales:

External Cause of Death	United States Registration Area	England and Wales
Total external causes	88.7	46.7
Accident and unspecified violence	71.4	36.9
Burns (conflagration excepted)	7.6	4.7
Drowning	5.7	5.0
Traumatism by firearms	2.6	.3
Traumatism by fall	11.8	7.7
Traumatism by other crushing accidents	21.6	10.2
Suicides	10.2	9.1
Homicides	7.1	.8

PRIMARY CHANGES IN EYES OF RATS WHICH RESULT FROM DEFICIENCY OF FAT-SOLUBLE A IN DIET*

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DAIREN, MANCHURIA

Of recent years, several investigators have described the eye disease which occurs in rats as the result of diets deficient in fat-soluble A. Various names have

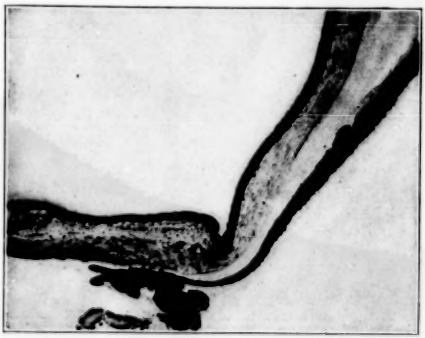

Fig. 1.—Section through the normal eye in the region of the limbus.

been given to this condition. McCollum and Simmonds [1] termed it xerophthalmia. They chose this name after careful study of the development, symptoms and treat-

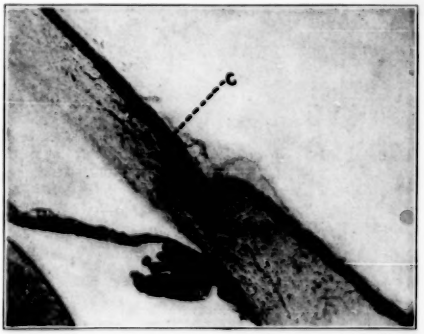

Fig. 2.—Section through cornea and conjunctiva to show the beginning xerosis corneae and conjunctivae, and the cornification (c) and thickening of the epithelium. The substantia propria is thickened and infiltrated.

ment of xerophthalmia as it occurs in rats and man. Osborne and Mendel [2] preferred to use the more general term ophthalmia. Goldschmidt [3] studied the pathology of the disease as it occurred among young

* From the Laboratory of the Department of Chemical Hygiene, School of Hygiene and Public Health, Johns Hopkins University.

1. McCollum, E. V., and Simmonds, Nina: J. Biol. Chem. **32**: 181 (Nov.) 1917.
2. Osborne, T. B., and Mendel, L. B.: Ophthalmia and Diet, J. A. M. A. **76**: 905 (April 2) 1921.
3. Goldschmidt, M.: Arch. f. Ophth. **90**: 345. 1915.

rats on Hopkins' diet. His studies convinced him of the identity of the lesion with keratomalacia in man, and he proposed giving this name to the disease in the rat. Stephenson and Clark [4] also preferred this term to xerophthalmia, for the pathologic condition in the eyes of rats seemed to them to resemble keratomalacia more closely than xerophthalmia. The reported incidence of the disease among animals in different laboratories on deficient diets varies a great deal. Stephenson and Clark produced the disease in 28 per cent. of forty-six rats. Osborne and Mendel observed the ophthalmia in forty-nine out of 136 animals. Walker [5] found five cases in his first group of sixty-four animals. In his second group of thirty-eight rats, six developed sore eyes. Emmett,[6] on the other hand, has stated that out of his 122 rats 120, or 98.3 per cent., sooner or later showed positive signs of xerophthalmia. The incidence of the disease in any group of rats will depend on whether the diet is entirely or only partially deficient in fat-soluble A, and on the age of the animals.

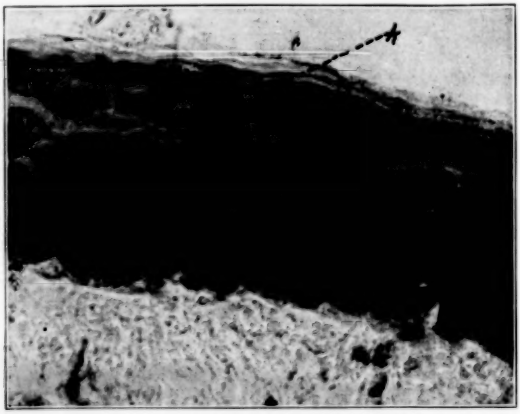

Fig. 3.—Conjunctival epithelium showing keratohyaline (*k*) granules in the cells; × 1,000.

The pathologic changes in the eyes of experimental animals which were reported by Goldschmidt, Stephenson and Clark, Wason, and Walker, were for the most part those which result from inflammation and destruction or necrosis of the cornea. No one has as yet described any specific preliminary alteration which is characteristic of this condition. Stephenson and Clark [4] state that "the only criterion we possess for determining the preliminary change caused by the deficient diet is the appearance of the secondary symptoms caused by bacterial invasion," and they failed to demonstrate with certainty any histologic change in the cornea which preceded bacterial infection. Wason [7] concluded that "no fundamental data concerning the etiology of ophthalmia in rats on deficient diet or the cause of the cornea localization have been derived from these anatomic studies."

The knowledge which we possess of ophthalmologic pathology, especially of the pathology of xerophthalmia and keratomalacia, would lead one to suspect that, if specific preliminary changes occur in the tissues of the eye before invasion by bacteria takes place, they will be found in the epithelium of both the cornea and the conjunctiva. Therefore, if the disease in rats is to be identified with xerophthalmia or keratomalacia as they occur in man, the conjunctiva as well as the cornea must be the object of careful comparative study. Such a comparison between the lesion of xerophthalmia in man and the eye disease produced in the rat by diets deficient in fat-soluble A was the object of my investigation. The purpose of this paper is to report the early changes in the corneal and conjunctival epithelium which characterize the disease in the rat.

Preparations were made from (*a*) the eyes of rats on a normal diet; (*b*) sore eyes without demonstrable affection of the cornea from rats on deficient diets; (*c*) eyes from animals showing clouded corneas on one or both sides, and (*d*) eyes with corneal ulcerations in several stages of development. The eyes were fixed in 4 per cent. solution of formaldehyd and embedded in celloidin, and stained with hematoxylin-eosin or with iron hematoxylin.

The epithelium of the normal conjunctiva bulbi and the cornea consists of a superficial layer of flattened squamous epithelium, a deeper layer of polygonal cells, and beneath these a basal layer of columnar cells (Fig. 1). Under normal conditions, the cells in the superficial layer retain their nuclei. They are kept constantly moist by secretions. The eyes of rats which have been fed on a diet deficient in fat-soluble A show two distinct and characteristic changes at the onset of the disease. One of these is the cornification of the outer layer of epithelial cells of the conjunctiva bulbi, and the other the formation of granules of keratohyalin in the cytoplasm of the second layer of these cells. The same cornification is also found in the corneal epithelium, but keratohyalin is not formed in the cornea except at the limbus. In the process of cornification, the cells of the

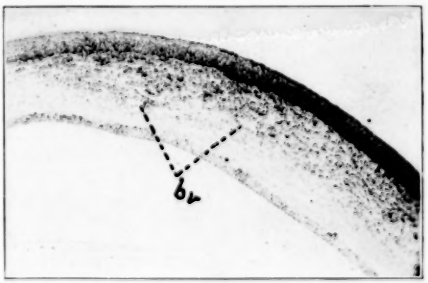

Fig. 4.—Section through the cornea to show the thickened epithelium, destruction of Bowman's membrane, infiltration in substantia propria and vascularization; *bv*, new formed blood vessels.

4. Stephenson, M., and Clark, A. B.: Biochem. J. **11**: 502, 1920.
5. Walker, Sydney: The Relationship Between Xerophthalmia and Fat-Soluble A, J. A. M. A. **78**: 273 (Jan. 28) 1922.
6. Emmett, A. D.: Science **52**: 157, 1920.
7. Wason, Isabel M.: Ophthalmia Associated with a Dietary Deficiency in Fat-Soluble Vitamin (A), J. A. M. A. **76**: 968 (April 2) 1921.

conjunctival epithelium become flattened and loosened from the layer beneath. They lose their nuclei and stain heavily with eosin. At the same time, very fine granules appear, surrounding the nucleus in the cytoplasm of the second layer of cells. These granules are deeply stained by hematoxylin, and by the Gram-Weigert stain, and are called "keratohyalin" (Figs. 2 and 3). These two changes were shown by Leber [8] to be caused by dryness of the conjunctiva, and they are the characteristic changes of the xerosis conjunctivae of human beings. Besides this cornification and the formation of keratohyalin, the epithelium of the conjunctiva is always somewhat thickened. As the disease advances, cornification and keratohyalinization spread from the region of the limbus, where they first appear, throughout the conjunctiva bulbi to the fornix, and the conjunctiva palpebrae. As was stated above, the epithelium of the cornea also becomes cornified. The superficial cells near the limbus first become horny (keratinized), and their attachment to the thickened epithelium beneath, which is often infiltrated by pus cells, becomes loosened. Keratohyalin formation is usually absent from the corneal epithelium except

Fig. 5.—Section through the cornea showing epithelial necrosis, followed by infiltration in the substantia propria and anterior chamber (a).

where that tissue joins the conjunctiva limbi. The substantia propria shows a slight cell infiltration as a reaction to the epithelial change.

In later stages of the disease, either one of two alterations may take place in the corneal epithelium. The one consists of the destruction of Bowman's membrane and the abnormal thickening of the layers of epithelial cells, the superficial layer of which becomes cornified. At the same time the number of corneal corpuscles is much increased in the propria. The infiltration of the substantia propria by pus cells becomes more and more dense, and new blood vessels are formed in the tissue (Fig. 4).

These xerotic changes, which, like the ones described above, have been shown to be the result of drying of the cornea, constitute a keratosis in the pathologic sense. Another type of epithelial alteration is necrosis, which results from disturbance because of dryness in the nutrition of the cornea. The corneal epithelium from the limbus to the center gradually loses its thickness. The cells lose their nuclei, and the boundaries between the cells become indistinguishable. The epithelium usually becomes infiltrated by pus cells. At the same time the propria shows marked edema and diffuse cell infiltration as the result of the condition of the epithelium. At last in some cases the epithelium is lost entirely over small areas of the central portion of the cornea, and the substantia propria is left bare. In these cases the infiltration of the substantia propria by pus cells becomes very dense, and cellular exudates appear in the anterior chamber and the iris (Fig. 5).

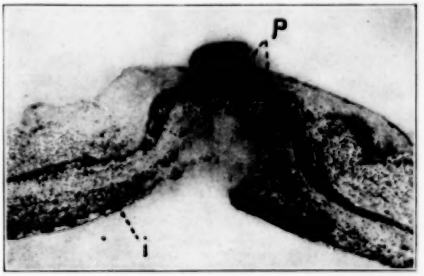

Fig. 6.—Section through an ulcer (perforated) in the central portion of the cornea which was destroyed; the perforation (P) is closed with fibrin and pus cells; the iris (i) is adherent to the cornea.

These pictures are similar to those found in cases of keratitis e lagophthalmo in human beings, and are the result of drying of the epithelium of the cornea. Very often in the course of the disease the rats' eyes show ulcers which frequently perforate (Fig. 6).

As is the case in xerosis and keratomalacia in man, smears from the sore eyes of rats usually contain an enormous number of micro-organisms, such as the streptococcus, staphylococcus, pneumococcus, xerosis bacillus, and gram-negative bacilli, and cocci. None of these, however, can be shown to have a specific relation to the disease. Paraffin sections were made of eyes

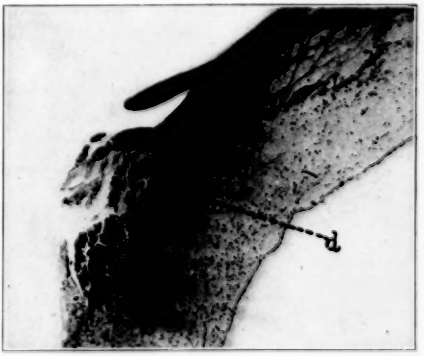

Fig. 7.—Section through a corneal ulcer showing necrosis of the upper layers; the necrotic area is surrounded by a line of demarcation (d).

from different cases, normal and diseased, and these were stained with Gram-Weigert's stain and thionin to show, respectively, the gram-positive and gram-negative organisms. The study of these sections reveals that, unless there are corneal ulcers, no invasion by bacteria of the cornea or conjunctiva takes places. Enormous

8. Leber, Theodor: Arch. f. Ophth. **29**: 225, 1883.

numbers of cocci were to be seen on the surface of the ulcers. Where the epithelium is lost, the propria becomes necrotic and the necrotic area is surrounded by a line of demarcation. Sections stained with thionin show gram-negative bacilli deep in the corneal tissue beyond this ring of infiltration. The same conditions obtain in the so-called keratomalacia of man (Fig. 7). The study of this material indicates that the changes of xerosis of the conjunctiva and cornea are not the result of bacterial invasion, but that, on the other hand, ulceration of the cornea in these animals is due to infection, and that the infection is secondary to the primary changes I have described.

Many observers have reported that in many of their animals the eye disease was apparently unilateral, and that it was not produced at all in some rats. The histologic study of my material shows that at a period during the feeding of a deficient diet the conjunctiva in both eyes of all animals undergoes the microscopic changes of xerosis. Eyes which show these changes in the conjunctiva may be apparently intact on clinical examination, since the cornea is apparently normal.

In a later paper I shall discuss the relation between the deficiency of fat-soluble A in the diet and the dryness of the conjunctival sac, and I shall describe the defects in the normal secretory mechanism which result in the desiccation of the cornea and conjunctiva.

SUMMARY

The eyes of rats on diets deficient in fat-soluble A show xerosis conjunctivae and xerosis corneae (xerophthalmia). Xerosis is the essential change and is caused only by the dryness of the tissue. The ulcers of the cornea (keratomalacia) are secondary, and are due to secondary infection by micro-organisms.

MUSCLE INTERPOSITION

A CAUSE OF DELAYED UNION IN FRACTURE OF THE FEMUR *

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AND
CHARLES B. LAKOFF, M.D.
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DETROIT

Stimulated by the demands of the war, methods of treatment of all fractures have vastly improved during the last few years. With these improvements of methods worked out by experts, there has been a gradual raising of the standards of results demanded by the general public. Insurance companies, state compensation boards, employers of labor, and the injured men themselves are beginning to inquire more and more closely into the underlying reasons for prolonged or permanent disability following fractures. They are beginning to feel that most fractures should leave behind little or no disability, instead of feeling, as they used to do, that serious fractures must produce cripples.

These changes have thrown an added responsibility on all who essay to treat fractures. They have made it more and more difficult for the general practitioner or the busy general surgeon to care for fractures, and have led to a growing tendency to the establishment of fracture clinics directed by experts, and to the attempts of employers, and the insurance companies, to place their fracture cases in the hands of men who have made fractures their especial care.

All this is particularly true of fractures of the femur. These, above all others, require a large amount of apparatus, a knowledge of many methods of treatment, an especially trained personnel, and ingenuity, if a sufficiently high percentage of perfect results is to be obtained. These requirements are too great to be found in the home or to be given the patients scattered through the wards of the general hospital. They can be found only when considerable numbers of patients are grouped in properly equipped wards under the continuous care of an especially trained force. Whether the man in charge of this force is a general surgeon or an orthopedist makes little difference, if we assume that the general surgeon has the time and patience to devote to the necessary detail and that the orthopedist knows how to operate. It is only by the grouping of cases in such surroundings that we are going to be able to satisfy our public, and it is only thus that improvements in treatment and analysis of error will lead to ultimate standardization and perfect results.

Thorough belief in the foregoing statements justifies us in presenting a small group of cases which call attention to one of the causes of unsatisfactory results in fractured femur, which has received comparatively little attention. This is the interposition of muscle between the ends of the fragments. The cases are from our fracture service at the Detroit Receiving Hospital, a city institution which cares only for the poor, except in emergency, when patients from all walks of life are accepted. In such an institution only the victims of accident who are poor remain under its roof till the final result is obtained. Those who are well-to-do and who come under the employers' liability act are removed as soon as possible to the care of their private physician or to other hospitals. Thus it is difficult to follow all cases to their final results.

From January, 1921, to April, 1922, there were treated in the fracture service a large number of fractures of the femur. Seventy-one of these patients survived their injuries or remained in the hospital for more than one week. All of the seventy-one stayed in the hospital long enough to provide records which will show the final results. These results will be made the subject of a later paper. All of the seventy-one were treated primarily by some modification of Balkan suspension and Thomas splint, with adhesive tongs or Steinmann pin traction combination, with or without prompt active mobilization of the adjacent joints. So far as we know, these are the methods used in all the large fracture clinics, except when some individual patient has insisted on some special operative procedure. In the seventy-one cases, open operation was done for only three reasons: (1) interposition of muscle tissues between the fragments; (2) for débridement of fresh compound fractures, and (3) for previously existing sepsis in cases treated elsewhere before entrance to the hospital.

Of the first class, interposition of muscle, there were six cases. This, according to accepted standards, is an extraordinarily high percentage. It is certainly high if we compare it to fractures resulting from war wounds. In a very large number of war fractures of

* Read before the Session on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

the femur, both fresh and old, which came under my personal observation overseas and later in this country, I saw only one in which delayed union resulted from this cause. This particular case was that of a soldier whose femur had been broken by the kick of a mule and not by a true war wound. In talking with other surgeons, I have found that their experiences coincide with mine. The reason for the fact that muscle interposition figured rarely in the healing of war wound fractures of the femur, we believe to be twofold: 1. The high velocity rifle or machine gun bullet did not displace the main fragments to any great extent. 2. The shell wounds which did cause much displacement were always accompanied by great damage to soft parts which required immediate exploratory operation and direct replacement of the bone.

Fig. 1 (Case 1).—Overextension but persistent displacement.

In civil life, however, most of the forces which cause fractures of the femur involve great lateral or twisting displacement without necessarily causing large, open wounds. Such forces are the fall from a great height, the automobile smash, and the crush under heavy weights. They displace the fragments largely, thus giving the muscle masses an opportunity to slip between them and be held there by their own elastic quality.

All of our cases, of which a brief protocol follows, were the results of automobile injuries, or falls from heights, etc.

REPORT OF CASES

CASE 1.—H. P., aged 20, received a simple fracture of the middle and upper third of the right femur in an automobile collision. Jan. 22, 1921, roentgen-ray examination revealed an outward and forward displacement of the upper fragment, with shortening. Three days later the shortening was overcome, but the upper fragment was still displaced as before. Two weeks later the shortening was completely overcome, and lateral alinement was good, but anterior displacement of the upper fragment persisted. One month later, the shortening was overcorrected. Five days later the same condition existed. Six weeks later there was increased anterior displacement of the upper fragment. March 17, there was no union, and anterior displacement persisted. Operation was performed through a lateral incision. There was no callus; the whole body of the biceps was interposed between the fragments and held by jagged fragments of bone. The muscle was freed, whereupon reduction of the fragments became easy. They were held by kangaroo tendon. A plaster cast was applied. Convalescence was very slow, bone formation being delayed. There was recurrence of outward bowing. In February, 1922, union was firm, with outward bowing. There was three-fourths inch shortening. The knee had 35 degrees of motion.

CASE 2.—M. Y., a man, aged 31, sustained a simple fracture of the middle third of the right femur by falling from a scaffold. May 23, 1921, roentgen-ray examination revealed the upper fragment displaced anteriorly, with some shortening. Four days later the shortening was overcome, but anterior displacement of the upper fragment persisted. June 10, lateral alinement was good, and there was no shortening; but the upper fragment was still displaced anteriorly. June 23, a mass of muscle tissue between the fragments was freed. The ends were brought together easily and held with kangaroo tendon. Slow convalescence ensued, not due to sepsis, but to mental and circulatory disturbances. The wound healed by first intention, but the fragments slipped because of the patient's violence. August 3, there was no union, and there was forward displacement of the upper fragment. Since then the patient has been treated at another hospital with a Lane plate, but nonunion persists. The fragments did not unite ultimately for reasons outside the muscle interposition.

CASE 3.—B. T., a man, aged 33, received a simple fracture of the middle and lower third of the left femur by a fall from a scaffold. Oct. 1, 1921, roentgen-ray examination revealed persistent backward displacement of the lower fragment to a mild degree. At the end of eight weeks of treatment, including manipulation under an anesthetic, no callus had formed. In an open operation, November 22, a mass of muscle between the fragments was freed with great difficulty. The fragments were held with kangaroo tendon. A plaster spica was applied. Two weeks later they slipped out of position in spite of the plaster. December 20, a Lane plate was applied. It was removed in five weeks. Position was perfect, but there was no bony union. In April, 1922, union was gradually forming.

CASE 4.—L. M., aged 21, received a simple fracture of the middle third of the right femur in an automobile crash. Roentgen-ray examination, Nov. 28, 1921, revealed a fracture of the upper third of the right femur. The lower fragment was displaced slightly to the inner side and posteriorly. There was slight shortening. A roentgenogram taken December 8, ten days later, in the anteroposterior position, revealed the alinement as being very good. A lateral view disclosed posterior displacement of the lower fragment. There was no shortening. A roentgenogram, December 28, five weeks after the injury, revealed no union and no shortening. Posterior displacement still persisted.

Operation, Jan. 3, 1922, revealed the lower fragment displaced backward with separate fragments between it and the lower end of the upper fragment. Large muscle bands were found intertwined among the fragments, holding them apart. These were cleaned away, and anatomic reposition of the fragments was obtained. A Gallie beef bone plate held the fragments well. Convalescence was slow; callus formation was delayed, but this may have been due to the fact that the patient was pregnant. May 9, a roentgenogram disclosed a large amount of callus. Position was good. The patient was up and about. A caliper splint was employed.

Fig. 2 (Case 1).—Reduction after operation for removal of interposed muscle.

CASE 5.—G. B., a man, aged 27, received a simple fracture of the lower third of the left femur. Roentgen-ray examination, March 21, 1922, revealed a transverse fracture of the left femur 4 inches above the left knee joint. The lower fragment was displaced posteriorly, with about one and one-fourth inches overriding. A roentgenogram, March 27, revealed the lower fragment still considerably displaced posteriorly. At operation, March 30, the lower fragment was found displaced backward into the popliteal space. It was held there by a dense band of fascia and a tendon of the semitendinosus. It was freed with some difficulty and brought forward into perfect apposition with the upper fragment. It was held by a Gallie beef bone plate and screws. A roentgenogram, April 4, revealed good position. Another, taken May 11, revealed a considerable amount of callus, but the bone plate did not hold firmly. There was forward and inward bowing. This was easily corrected by lateral and longitudinal traction.

Case 6.—M. H., a woman, aged 23, entered the hospital, Oct. 27, 1921, with a simple fracture of the lower third of the left femur. The lower fragment was displaced inward and backward. October 18, a roentgenogram revealed the lower fragment still displaced posteriorly and inward. There was no apposition. October 25, a roentgenogram revealed the same position. Shortening had been entirely overcome. November 15, the patient was operated on at another hospital. Muscle interposition was cleared. A Lane plate was applied. Union was prompt.

CONCLUSIONS

1. If the fragments of a fracture of the femur are not brought into actual bony contact, as shown by the roentgenogram taken in two places, by properly applied traction within three or four days, the case should be viewed with suspicion.

2. If specially worked out methods are not immediately thereafter successful, manipulation under an anesthetic should be employed. This attempts to disengage the fragments from the muscle. Such disengagement can usually be recognized by the clean, clear-cut rubbing of the fragments on each other.

3. If, after such manipulation and the reapplication of traction, apposition is absent at the end of two or three days, as disclosed by roentgen-ray examination, open operation should be undertaken.

4. At open operation, the muscle or fascia bands must be cleaned from the fragments and good apposition obtained. If this apposition is of the end-to-end, interlocking type, then only external fixation splinting is necessary. If there is a tendency of the fragments to displace again, some solid forms of internal splint must be used. Gallie's beef bone plates or Magnusen's ivory plates and screws or pegs will usually suffice. Both are more simple of application than Albee's grafts. When they will not hold, metallic plates or bands are occasionally necessary.

1337 David Whitney Building.

Fig. 3 (Case 3).—Persistent backward displacement with full length after use of various forms of traction.

ABSTRACT OF DISCUSSION

Dr. William R. Cubbins, Chicago: I have never seen muscle directly between the fragments of bone when the limb has been extended on a Hawley table. The tension made in extending the limb will make the muscles taut, so that while there may be a few ragged fragments of muscle tissue between the ends of the bone, there is not sufficient quantity of muscle between the bone to interfere with union. It is well to remember that a little muscle tissue subjected to pressure will rapidly disappear. In my opinion, the greatest catastrophe in cases of fractured femur is an operation and infection. Disability will continue from six months to six or seven years, fragments of bone being discharged at intervals. If the wound is clean and a foreign body is inserted, the area surrounding the site of implantation has an increased amount of heat, which can easily be detected by the examining hand. Some persons do not pay much attention to this heat, but a sensitive individual has sufficient cause for claiming disability, and the industrial boards before which I have appeared believe this to be sufficient cause for disability. When a surgeon is forced into an operation and a plate must be used, by all means use a long, strong plate, with plenty of screws to insure stability, and remove the plate when union has been obtained. In my opinion, there is no difference in the degree of insult to tissues from steel, ivory or boiled bone. They are all foreign bodies. I have not been able to see any difference in the degree of insult to tissues by screws through the medullary cavity or merely into the cortex. An autogenous bone graft should always be used when possible, and this graft should be made to fix the fragments without the addition of any foreign body. Intramedullary bone pegs act well in young persons; very poorly in the aged. If an infection occurs with an autogenous bone graft, it is not uncommon to see the bone graft live in spite of the infection. My results in treating fractures of the femur by conservative methods during the last three years have been so satisfactory that I sometimes doubt whether I will ever employ an open operation.

Dr. C. B. Francisco, Kansas City, Mo.: Dr. Kidner limited the indications for open operation to three particulars: muscle tissue between the fragments, débridement and sepsis. There is one guide in this connection that has helped me, and that is, that usually there is a comminution of the fragments and a fragment of bone is knocked across to the opposite side, carrying with it fascia or muscle tissue which is interposed between the fragments. I think that one should, as Dr. Kidner says, determine this factor reasonably soon because the delay in waiting until union should occur is a great hindrance to throwing out of the callus, and, as he stated, those cases that have gone along for six or eight weeks and were then treated by operation showed a definite delayed union. I think also it is very much easier to reduce cases if one tries traction continuously. I think the more we try the fewer the number of cases in which open operation is required.

Dr. Philip H. Kreuscher, Chicago: In the management of any other fracture, the personal equation of the surgeon comes into play. Some of us can get very good results with external fixation methods, and some can get better results with internal fixation. We cannot lay down any law saying one must use Parham-Martin bands, Lane plates or any other appliance in a given case. We have been criticized for making walking hardware stores out of our patients because we put in too much metal. In a way, the criticism is justified. I sometimes think we go around looking for fancy splints, external and internal, which are unnecessary, when we could use the simpler methods already at our disposal. There is a definite indication for the Parham-Martin band, when there are two or three fragments to hold together. In the ordinary spiral fracture, it is also of value. We should use the Lane plate more than we are using it. Some of us do not use the Lane plate properly. In the first place, we do not put it in cleanly, the screws become loose, the blood clot becomes infected and the plate has to be taken out. If we keep our fingers and the fingers of our assistants out of the wound we are going to do that operation cleanly. If we tear muscles, we are going to have a certain amount of postoperative trauma and postoperative heat. If we expose the bone by following a line of cleavage and do not use heavy retractors, but use instead the Farr spring retractors when we are putting on a Lane plate, we will get better results with less trauma. Do not try to put it under the periosteum. Do not try to put a rectangular screw into a triangular drill hole. Use the Sherman screw that will fit down in the hole in the bone and you will have little trouble. I disagree with Dr. Cubbins when he says that transplants are indicated for fixing the fragments in place. I do not believe they stabilize the fracture. In the second place, I believe it is too excessive an operation when you have so many other methods you can employ.

Dr. H. D. Wood, Fayetteville, Ark.: I use an improved Hodgen splint. It is a splint that can be used in transporting the patient from the place of injury to the home or hospital with as much or more comfort than when the Thomas splint is used. I treated my first case of fractured femur more than fifty years ago. As Hodgen said, "If you put the fractured limb in a swing and make slight continuous extension, the muscles will relax and permit the fragments to fall in place." He also said, "When you put your patient's limb in this type

of splint or swing, motion will occur at the place of least resistance, which is the hip joint." I have found that to be the case. I have found it a convenient way to treat a compound fracture of the femur when there is an abscess discharging pus. You can release one of the bands coming under the limb and dress the wound without disturbing the fracture.

DR. P. B. MAGNUSON, Chicago: I think Dr. Kidner has expressed the views of most of us when he said that he had tried all methods and none of them worked all the time. I think most of us who have done fracture work fully appreciate that. We condemn the Lane plate and the ivory plate and the bone plate; but when we operate we ought to have them all handy so that we can use whatever is necessary for the case. We cannot tell from the outside what we are going to have on the inside. I disagree very materially with Dr. Cubbins' statement that the Lane plate does not cause any more traumatism or irritation than bone or ivory. In the first place, I do not think that it is proper from a purely mechanical standpoint. In the second place, those of you who have taken out Lane plates know that many of them have a collection of serum about them. I disagree with Dr. Kreuscher that the infection is primary. Many of them show a little swelling and a seepage of fluid six weeks after. Dr. Cubbins took out a plate six years ago that Mr. Lane put in eight years ago, because it was bothering the patient. It is true that all these things loosen up. You can say what you like about dead bone, ivory or autogenous graft, they all loosen up at some point in the procedure. After that they may tighten up if they are not warped, but I never saw a Lane plate tighten up after it was once loosened. If you were to be operated on, you would not care to have to undergo a second operation later to take out something that was put in to do the first job, when you could have had something put in to stay.

DR. FREDERICK C. KINDER, Detroit: I must disagree with what Dr. Cubbins says about muscle interference in fractures with traction. I have operated and found muscle intervening no matter how hard I pulled, even on the Hawley table. I agree we should use every effort to get the fragments together without open operation. As to bone grafts, I do not think they are better than any other means of internal fixation. They do not give the rigidity in difficult cases that metal, ivory or beef bone often does. They are very useful, perhaps, in ununited fractures. The longer we wait in these muscle interposition cases, the slower will be the convalescence following the operation. Therefore, I am learning to try to recognize these cases and get my open operation done by the end of a week or ten days. The matter of Lane plates becoming septic is to my mind dependent on the surgeon only. I do not believe it is any wiser or more necessary to operate on bone with long instruments without the use of fingers than it is in the abdomen. I think the resistance of muscle and bone to infection is just as great as the resistance of the abdomen. I still believe that the use of gloved fingers does less harm and causes less traumatism than does a strictly instrumental technic.

Complete Hospital Data Lacking.—In no American city of any size is it possible to give the total number of cases admitted to the hospitals, both public and private, the diseases for which entrance was sought, the age and sex distribution of the patients, the duration of treatment and the result of the treatment. It is a blemish on the excellent work done by hospitals that this phase of their activities has been left undeveloped almost without exception in the United States.—H. Emerson, *Hosp. Soc. Service* **4**:271 (Nov.) 1921.

A COMPARATIVE STUDY OF ETHMOIDAL AND SPHENOIDAL OPERATIONS*

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MEMPHIS, TENN.

The appreciation that the posterior ethmoidal cells and the sphenoidal sinus are the causative factors in many of the optical nerve disorders has centered attention on this region. Formerly, the anterior ethmoidal cells held the center of the stage in our attention because of their relationship to the frontal sinus. The older operations were so designed that the anterior cells were first attacked and were more thoroughly exenterated at the expense of an uncertainty of thoroughness in the posterior region. If the sphenoidal sinus and the posterior ethmoidal cells are the important factors, then the successful operation must be based on thoroughness in their exenteration. In like manner, the curet, guided by the sense of touch, must give way to the trustworthy biting forceps, controlled by the sense of sight. The fundamental law of safe ethmoidal and sphenoidal surgery is to work by sight only, avoiding tearing by accomplishing each removal with a clean bite. It is intended to compare the intranasal operations and not to consider the radical operations.

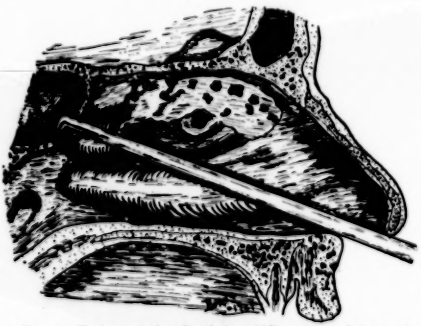

Fig. 1.—Fleshy posterior tip of the middle turbinate being used as a landmark for the puncturing of the sphenoidal sinus.

ANATOMY

The ethmoidal and sphenoidal sinuses are so closely articulated as to be considered one structure. The division between the anterior and posterior cells cannot be made out surgically, nor can the posterior cells be completely exenterated without removing the pars ethmoidalis, which will open the sphenoidal sinus. The middle and superior turbinates are only specialized portions of the ethmoidal bone. The optic nerve is in close relation with the lateral and superior aspect of the sphenoidal sinus and usually with the posteroexternal angle of the last posterior ethmoidal cell. Its course forward in the orbit carries it farther away from the inner orbital wall the farther it goes forward, so that it is increasingly removed from the possibility of contact with the anterior ethmoidal cells. Hence, in disturbances of the optic nerve, the usual or logical site of a causative nasal lesion is in the sphenoid or posterior ethmoidal cells.[1]

The middle turbinate is so situated that its posterior end is anterior to the sphenoidal sinus and is a reliable landmark in locating the sinus.

There is a type of spheno-ethmoidal labyrinth similar to the persistent infantile type of mastoid, that is, the cells are small and their walls firm, and this condition may be due to an arrested development. When this

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Loeb, H. W., and Wiener, Meyer: Ann. Otol., Rhinol. & Laryngol. **30**:74 (March) 1921.

type is encountered, the pathologic condition present is chronic, and the postoperative healing is slow.

PHYSIOLOGY

The special sense of smell is a subject for consideration in ethmoidal surgery. The protection of the membrane lining the superior turbinate and the septum opposite to it will preserve this sense. It is very embarrassing to the surgeon for the patient to lose this sense, but this will happen if the membrane lining the superior turbinate is totally destroyed.

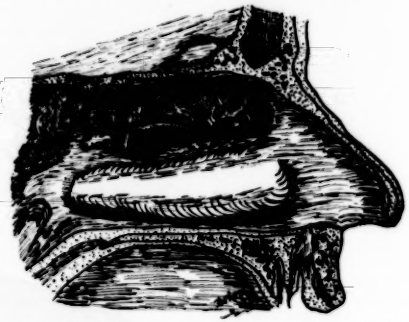

Fig. 2.—Completed operation: thoroughness of the exenteration of the posterior ethmoidal cells.

OPERATION

A description will be first given of a composite operation that has for its advantage a greater chance of thoroughness in resecting the anterior wall of the sphenoid and exenterating the posterior ethmoidal cells; and then a comparison of its advantages with the usual textbook operation will be considered. The operation is based on the good points of operations discussed. Through the courtesy of Dr. Loeb I will use for illustration and description the operations as outlined in his book.[2]

The patient, having been thoroughly anesthetized (local preferred), is placed in a semiprone position or upright, with an assistant supporting the head. The position assumed by the patient should not be allowed to distort one's surgical anatomy. The middle turbinate is completely removed. This will always leave a fleshy tag at its postero-inferior attachment. The sphenoidal sinus is situated immediately posterior to this tag, and at all times this tag may be used as a landmark in orientating oneself in this region.

By passing the sphenoidal punch alongside this tag the sphenoidal sinus can be directly entered at its safest point (the inferomesial aspect). The pars nasalis is resected with due reverence to the position of the posterior branch of the nasopalatine artery. Yankauer has given us a method of attacking this vessel and eliminating it as a complicating factor. This is detailed under his operation. The resection is carried outward and, by the removal of the pars ethmoidalis, the posterior ethmoidal cells are entered. If there are any atypical ethmoidal cells surrounding the sphenoid or any extending laterally, they are easily entered and their partitions removed. A small piece of gauze is now placed so as to fit against the nasopharynx and lessen the amount of blood that will run down into the throat. The exenteration of the ethmoidal cells is accomplished with suitable biting forceps, starting from behind and working forward at the level of the attachment of the middle turbinate. The cells are thus reduced in layers from above downward. The cells which lie above the attachment of the middle turbinate are removed by using the forceps in such a position that the longer blade is toward the median line. This will prevent injury to the cribriform plate. The mucous membrane covering the uncinate is reduced, and with suitable forceps the anterior cells are removed. Occasionally it will be necessary to use a curet in this anterior position to expose the foremost cells, but their removal is accomplished with biting forceps. If there has occurred a hypertrophy of the ethmoidal cells, to such a degree that they obstruct the vision of the posterior region, then the obstruction must be reduced before the more delicate posterior surgery is undertaken. In like manner, if the septum is deflected and will interfere with free instrumentation at the time of operation or in the after-treatment, it should be resected.

As all the operating is done by sight, the field must be kept clean of blood. The use of a suction tube will expedite matters. At first we used a glass drinking tube by attaching it to the suction side of the ether suction machine, but it was found to be too large to enter many of the sphenoidal cavities, so Mr. V. Mueller made us a removable tip for the instrument described by Walker.

Yankauer [3] recommends irrigation of the nares with iced saline solution when the action of the epinephrin has died away.

PRATT'S OPERATION

Dr. J. A. Pratt [4] presented in 1919 an operation in which the middle turbinate was allowed to remain. His description of the technic is given below.

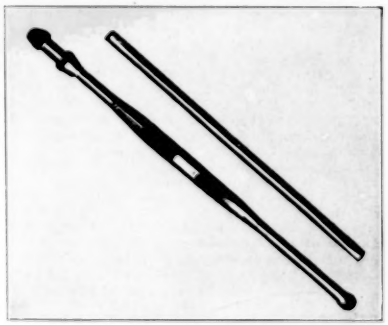

Fig. 3.—Suction instrument for intranasal use, made by modifying the tip of the instrument designed by Walker.

The anterior cells are opened with the nasal cutting forceps, biting just under the anterior end of the middle turbinate, pointing toward the corner of the eye and continuing backward and upward as long as there is soft bone encountered. . . . We take the straight end of the curet and, with a

2. Loeb, H. W.: Operative Surgery of the Nose, Throat and Ear, St. Louis, C. V. Mosby & Co.

3. Yankauer, Sidney: The Complete Spheno-Ethmoid Operation, Laryngoscope **31**: 831 (Nov.) 1921.

4. Pratt, J. A.: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1919.

firm but gentle stroke in every direction, curet out all of the partitions of the soft cells. . . . With the angle end of the curet any anterior cells are now removed, enlarging the space upward toward the frontal sinus. We now cut out the floor of the capsule back to the sphenoid sinus, giving a free open space under the entire length of the middle turbinate. . . . If, after a suitable length of time, the discharge does not cease, the nose can be recocainized and the operation easily extended into the sphenoid, or by the use of a

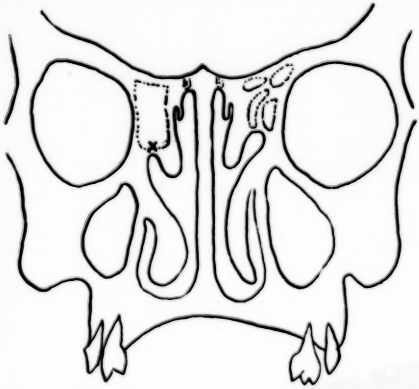

Fig. 4.—Pratt's operation: protection provided by the middle turbinate for the cribriform plate during the exenteration.

Thompson-Good rasp, a large opening can be made into the frontal sinus.

Pratt also states that he has not yet found it necessary to remove any part of the middle turbinate in order to exenterate the ethmoids or open the frontal or sphenoidal sinuses, intranasally.

Comment.—The sphenoidal sinus and the posterior ethmoidal cells are possible of being opened in this manner, but it is very difficult to keep them open. The débris will pile up as one works back and detract from one's security while exenterating the posterior cells, especially if there are any atypical cells, such as often encircle the sphenoidal sinus. The capsule of the persistent infantile type of the spheno-ethmoidal labyrinth is often firmer, and the posterior cells are smaller than normally, and the presence of the middle turbinate will interfere with the precision necessary for accurate exenteration of the posterior cells. Any sphenoid that requires a resection of its anterior wall should be accessible to postoperative treatment, and even the remains of the fleshy posterior attachment of the middle turbinate will block the drainage of the sinus.

MOSHER'S OPERATION

Mosher removes that portion of the middle turbinate which lies below the summit of the superior meatus with scissors and enters the ethmoidal labyrinth at the upper overhang with a sharp curet. The curettement is continued through the opening thus made and the curet is carried first forward against the ascending process of the superior maxilla and then downward and backward between the orbital plate and the middle turbinate as far as the ethmoid cells extend:[2]

The middle and lower half of the superior turbinate bones are then carefully removed by cutting straight backward as high above the middle turbinate as the scissors punch can be made to engage. One blade is placed in the exenterated labyrinth and the other follows backward in the olfactory slit. When the scissors punch has cut its way to the front wall of the sphenoidal sinus, the middle turbinate and the lower part of the superior turbinate are removed with a snare or twisted out with a small pair of Luc forceps. The sphenoidal sinus is punctured with the curet as close to the septum as possible if the ostium cannot be located. A probe bent at a right angle is introduced into the sinus and turned outward and brought forward against the external part of the front face of the sinus, and its width ascertained. This will show how much of the anterior wall can be removed. With a small right angle punch the anterior sphenoidal wall is resected. Avoid curetting the outer superior angle of the posterior cell. As a finishing touch, the curet is carried outward to os planum posteriorly and brought forward along its inner surface.[2]

Comment.—This operation did more for the future of ethmoidal surgery than any other operation. It meets the needs of anterior work, but has the same disadvantages as the Pratt operation, of being a curet operation, and that the operative approach is from before backward. Some of our best results were obtained with this method, but the number of failures to obtain and retain a dry naris was too great. These failures were due to the missing of some of the cells by the piling up of the débris and the tearing of the curet. When the frontal sinus is to be drained through the ethmoids, the knowledge of the distribution of the anterior cells about the frontal duct is imperative, and to Dr. Mosher belongs the credit of orientating us in this region.

BALLENGER'S OPERATION

Ballenger's operation is selected to represent the group of operations devised with the idea of removing the ethmoidal labyrinth *en masse*. With a specially

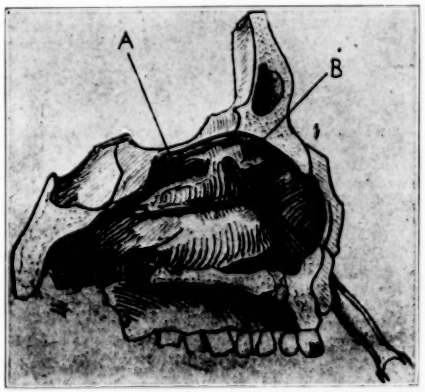

Fig. 5.—Mosher's operation: point of entrance into the ethmoidal labyrinth.

designed knife the ethmoidal labyrinth was carved free around its posterior, superior and anterior borders, and the resected mass withdrawn from the nose.

Comment.—The spheno-ethmoidal labyrinth is too delicate, and its relationship with the meninges is too

5. Mosher, H. P.: Laryngoscope, September, 1913.

close, to sanction such radical procedures *en masse*. Then, too, there are so few perfect labyrinths, and the anatomic variations are so great, that the method is limited to only selected cases, in the hands of a very few surgeons.

HAJEK'S OPERATION

Hajek resected the middle and superior turbinate with his hook and reduced the anterior wall of the

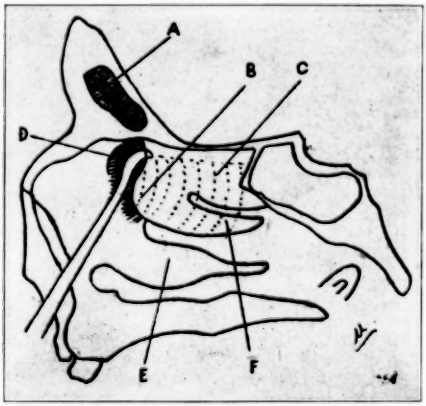

Fig. 6.—Mosher's operation: exenteration of the ethmoidal cells from before backward.

sphenoid and the posterior ethmoidal cells with the same hook, by inserting the hook posteriorly and drawing it forward and removing the shreds with forceps.[1]

Comment.—This was the first operation which attacked the sphenoid primarily, and which worked from behind forward.

SLUDER'S OPERATION

Sluder's technic is an improvement on that of Hajek's, and the hook is replaced by a Sluder ethmoid knife, so constructed that the cutting edge is turned at right angles to the shaft and sharpened so as to cut on the pull, with the lower part of the shaft supporting a sharpened edge. The middle and superior turbinates are removed with the knife. The sphenoid is attacked directly, and the pars nasalis and the pars ethmoidalis are resected, thus exposing the posterior ethmoidal cells. The ethmoidal capsule is resected by a series of strokes from behind forward, and working away from the roof. With suitable forceps, the fragments are removed and the field is made surgically clean.[2]

Comment.—The same may be said of this method as of the method of Hajek, that the sphenoid and the posterior ethmoidal cells may be thoroughly exenterated. Early attention to the posterior region insures the success of the operation.

REAVES' OPERATION

Reaves,[6] in 1919, emphasized the value of sharp biting forceps, and the fact that the only acceptable operation is one that completely exenterates all the cells and resects the anterior wall of the sphenoid. He also calls attention to the fact that the mucoperiosteum curetted or stripped by dull forceps from the roof and wall will be covered over by granulation tissue, which becomes scar tissue or a boggy mass to harbor infection. Reaves removes "the middle turbinate, the vertical plate of the ethmoid with the superior turbinate and lower half or two thirds of the ethmoid cell with his ethmoid knife," the roof is orientated, and "then follows the removal of the ethmoidal cells forward and backward or vice versa with forceps adapted in size to engage the cells which are even higher than the nasal roof."

Comment.—Reaves has given us not only a method but also the necessary instruments to accomplish our purpose. He also brought out thoroughly the fact that the lining mucoperiosteal membrane should be protected and sufficient time taken to completely exenterate all cells possible of reaching by sight.

YANKAUER'S OPERATION

Yankauer, in 1920, gave an encouraging outlook to the modern spheno-ethmoidal operation, and added several very valuable points to its technic. The isolation of the posterior branch of the nasopalatine artery as it crosses the face of the sphenoid and by crushing, eliminating it as a complicating factor, is worthy of notice. The use of iced physiologic sodium chlorid solution as a douche during the operation to check the oozing after the epinephrin has ceased to act, and

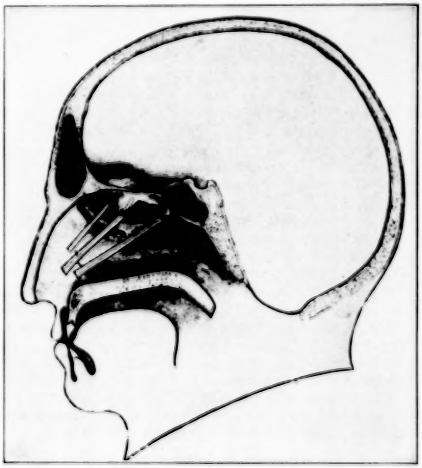

Fig. 7.—Reaves' operation: use of the 15 degree angle ethmoidal forceps in removing the middle turbinate; position of the sphenoidal punch while resecting the anterior wall of the sphenoid.

the use of bone wax to plug the anterior ethmoidal artery when it is a source of hemorrhage, are worthy of praise. Yankauer[3] thus describes a very sensible and thorough operation: The middle turbinate is removed with a Holmes scissors and snare. "The most prominent cell is attacked with forceps. From this point the opening of the cells proceeds in a backward direction until all of the cells of the posterior group

6. Reaves, Perry: Ethmoidal Operation for Pansinusitis, Tr. Acad. Ophth. & Oto-Laryngol., 1919.

and the sphenoid cell have been opened, their entire inner walls and the partitions which separate them being completely removed and all converted into one single cavity." The sphenoid is attacked early in the operation and its anterior wall resected, exposing any hidden posterior cell. Yankauer localizes his roof by utilizing the upper limits of the sphenoid or the posterior ethmoidal cell. "The anterior cells are opened from behind forward, until the anterior limiting line has been reached, which is the rounded border of the nasal process of the superior maxilla."

Comment.—This operation is full of wisdom and, if followed, will render favorable results and be a source of benefit to the chronic ethmoidal cases.

ABSTRACT OF DISCUSSION

DR. FRANK L. DENNIS, Colorado Springs, Colo.: Dr. Shea has emphasized that it is much better to work from behind forward, because one has the advantage of seeing what one is doing. The method of proceeding from before backward has the disadvantage of obscuring the field, not only by blood, but the entire front of the nose is filled with a mass of débris. Another point he brought out that is of importance is that it is necessary first to create a passageway for the operation. In other words, if the septum is deflected to one side, if the anterior end of the turbinate is enlarged, one must first create room for operating. The impression is given that the ethmoid operation does not amount to much. That is not true. There is too close a relation of too many important structures for any one to operate in the ethmoid region without the greatest care and without being able to see what he is doing. Not only should a roentgenogram be made of the sphenoid and ethmoid, but the nose itself should be studied beforehand. Dr. Shea did not say anything about hemostasis or anesthesia. Both are very important in the success of the operation. Another point is the importance of the after-care of these patients. The general idea is to leave in place as much as possible of the lining membrane; but whether that is practicable in many cases is a question in my mind. Many times one must take out much more membrane than one thinks desirable. Therefore, I think that in all these ethmoid operations the importance of the after-care should not be overlooked.

DR. T. E. CARMODY, Denver: The one point we must keep in mind is that we are coming to recognize the value of controlling hemorrhage. The nasal operations that we saw up to two or three years ago were bloody operations. The control of hemorrhage as brought out by Yankauer and Shea is simple and will help a great deal. I have found that an ordinary large sized eustachian catheter will answer the same purpose as the suction apparatus or Shea's instrument. In some cases the middle turbinate can be left, but we ought to be careful about leaving it when there is marked enlargement in the middle turbinate, because it will close the space and we shall be unable to take care of after-treatment as well.

DR. JOHN A. CAVANAUGH, Chicago: It is a difficult proposition to make roentgenograms that show positively whether the sphenoid is a definite size unless one injects it. I have injected these sphenoids with barium solution suspended in malted milk. I was surprised at the variations these sinuses revealed. The ethmoids on one side are always superimposed on the ethmoids of the opposite side, and it is difficult to separate them in the picture. In the last year I have been cocainizing the nose and introducing small films into the nasal cavity between the middle turbinate and the septum, placing markings on the anterior wall of the sphenoid and various points of the ethmoids and along the lower edge of the middle turbinate. This work is not completed. I hope that something will come of it. Regarding the sphenoid operation, and the picture showing the removal of the anterior wall of the sphenoid, some of you may have seen the burr I devised for removing this wall. I have not been able to find biting forceps to take down this wall of the sphenoid completely. But with my burr one can remove the entire wall and floor, which gives perfect drainage.

DR. EDWIN MCGINNIS, Chicago: When Dr. Mosher first brought out the anatomy of the ethmoid region with complete exenteration, curettage and cleaning up afterward with biting forceps, it seemed that we had reached very satisfactory results in operative surgery. A year later Dr. Shambaugh gave some data of exenteration which seemed to emphasize the result. During the last year, however, I have had three or four patients who had had complete exenteration of the ethmoid and who had reinfection of the cells that remained. If we could exenterate the sphenoid and antrum, I think that exenteration of all the cells would be the ideal operation. Of course, it is impossible to eradicate the antrum—Killian used to obliterate the frontal, but it is impossible to eradicate the sphenoid. One gets very enthusiastic about this thing, because if one can clear up the olfactory region in the narrow space between the middle turbinate and the turbinal plate, very often these patients will recover. A high septum operation will clear it up in many cases. Many of the patients do not do well. Study of the ethmoid region will reveal that the middle turbinate divides the two groups of cells, anterior and posterior, and the posterior cells are larger and have larger openings. But it is hard to examine these posterior cells; the anterior group are easy to observe. I proposed a drainage operation two or three years ago. I made an incision into the anterior ethmoid cells up to the frontal sinus, extending this through the posterior cells and back to the anterior wall of the sphenoid. Dr. Yerger gave the statistics in regard to infection of the sphenoid at the county hospital in the cases that came to postmortem. The sphenoidal sinus was the least infected of all of the nasal accessory sinuses. If one drainage operation does not do any good, one can do another; and, if the second drainage operation does not give results, one can then exenterate. For two years I have not disturbed the middle turbinate and have not exenterated the ethmoid labyrinth, and the patients do just as well as those who have had exenteration of the ethmoid.

DR. FRED J. PRATT, Minneapolis: I want to protest against removing the middle turbinate. The middle turbinate is a good thing to have as a guide during an ethmoid operation. The openings in the cribriform plate are between the middle turbinate and the septum, and if one removes the turbinate one opens an avenue for infection into the brain which can be avoided if one keeps the middle turbinate and works under it. Speaking of cleaning out the ethmoid, every one knows that there are accessory cells. Often we cannot find these the first time. The only thing to do, after exenterating the ethmoid, if the case does not clear up, is to go back and find out where the trouble is. The doctor spoke about not being able to keep the space open under the turbinate if it is left in place. Granulations form even if one removes the turbinate; and, if the turbinate is left, all that is necessary to do is to follow around the opening and bite off the granulations. One can do this just as well by leaving the turbinate as by removing it. Another thing tending to prove that the middle turbinate is of some use is that one will find in cases in which the turbinate was removed years before that Nature has put soft hypertrophies on the lateral wall and septum, trying to narrow the space. I think that this is proof that the middle turbinate is of some use.

DR. JOHN J. SHEA, Memphis, Tenn.: It requires from six to twelve months to obtain permanent results after an exenteration of the ethmoids in many of the cases, and during this period the patients should be treated carefully. Unless the sight is at stake, an ethmoidal case should be treated a month or two before operating, unless gross pathologic conditions are present. The discharge will change its character after the cells have been exenterated, but will not cease entirely. If the discharge remains purulent, scabs will be formed; but the cases are not troubled by dryness, as one would expect. A method of outlining the sphenoid of one side, when inspection fails to be satisfactory, is to insert the Holmes nasopharyngoscope into the other sphenoidal cavity

and transilluminate the questionable cavity. The paper did not deal with the indications for the operations. Dr. Carmody spoke of the eustachian catheter as a suction instrument. The one I improved is the outgrowth of using first a catheter and then glass drinking tubes. The latter are the more serviceable.

A CONSIDERATION OF ACUTE AURAL DISEASE IN CHILDREN *

A. SPENCER KAUFMAN, M.D.
PHILADELPHIA

Acute infections of the middle ear are met with at all times, but from December to April of each year they are exceedingly numerous, and as surely as they appear in succeeding years they vary in symptomatology and severity. In the past season, for instance, the number of cases of acute otitis media was greater than usual, and the severity of the symptoms was out of proportion to the morbidity of the disease.

It is indeed surprising how seldom aural examinations are practiced routinely; and it is well to emphasize at the beginning that, when such an examination is made and reveals trouble, and the proper methods of treatment are instituted, we have not only treated the existing condition, but have also applied prophylaxis against permanent loss of function and the dangerous intracranial complications.

ETIOLOGY

Considering the causative factors, we find the most common source of acute middle ear inflammation in local infection of the nose and throat, as well as in the general infections in which nose and throat involvement is more or less constant. We have but to remember that the mucous membrane lining the nose and throat continues up the eustachian tube; lines the middle ear cavity, attic and mastoid antrum, and forms the internal layer of the tympanic membrane, to realize with what ease infections involving the nasopharynx may, in turn, infect the ear. Influenza, measles and pneumonia are the most important general infections; but all of the other exanthemas and acute infectious diseases play important parts. In this class of cases, a routine inspection of the ears should be made, as one would examine the chest and abdomen for evidence of new developments. Local causes are the infections confined to the upper respiratory tract, such as acute rhinitis and obstructive conditions. Anything that interferes with the proper ventilation of the nasopharynx and eustachian tubes is a direct or indirect causative factor. Adenoids, by their direct blockage, and hypertrophied tonsils, by the upward pressure exerted on the tubes, are, of course, the most common factors. The removal of diseased tonsils and adenoids is the best prophylactic measure at our command in the prevention of aural involvement. This is true not only in the acute form, but also in the chronic suppurative and nonsuppurative.

It must be borne in mind, however, that, while the susceptibility to infectious processes is materially reduced by this operation, the possibility of their occurrence still exists when we have an acute nasopharyngitis, either primary or secondary. The vicious habit of teaching children to blow their noses by holding one or both nostrils tightly closed and applying expulsive force should be discouraged as dangerous to the ear. Chronic general diseases, such as tuberculosis, syphilis, scurvy, diabetes and nephritis, are often underlying conditions; but, except in the case of tuberculosis, in which we recognize a distinct type of otitis, middle ear involvement is probably due to lowered resistance, rather than to a distinct local manifestation. We all must agree that purulent otitis media occurs too frequently during dentition in infants to be a mere coincidence. The probable explanation is that, at the time of teething, there is general congestion of the entire mucous membrane of the nose and nasopharynx, causing a blockage of the tubes.

PATHOLOGY

The pathology in a direct infection does not vary from that of a condition involving the mucous membrane of any other structure; but there is a distinct difference in that class of cases that might be called secondary infection. By that, I mean those in which the eustachian tube is sealed off and the air in the tympanic cavity becomes absorbed. With its gradual disappearance, there is an outpouring of mucus, and we then have a condition termed hydrops exvacuo. If this fluid remains sterile, it will be gradually absorbed as the inflammation subsides and ventilation of the tympanic cavity is again established. This will clear up with proper treatment applied to the nose and nasopharynx; but, if it is of longer duration, active surgical treatment, such as will be spoken of later, must be applied.

SYMPTOMS AND TREATMENT

It is well to consider the symptomatology and treatment of the catarrhal and purulent otitis together, because, although we have a distinct disease in the acute catarrhal otitis media, every case of the suppurative variety must pass through the catarrhal first. No matter how brief this stage may be, it exists nevertheless and the symptoms that present themselves in the suppurative type are, with few additions, exaggerations of those that we find in the catarrhal.

First and foremost is the development of pain, which is usually worse at night. This varies from a slight discomfort to an exceedingly excruciating earache. The ordinary "earache of childhood" is attended by pain which is very severe but of short duration; and little can be seen on examination except, possibly, some redness along the handle of the malleus or of Shrapnell's membrane. Tenderness can also be elicited by pressure in front of the tragus and immediately below the lobe. An important thing to remember is that, in the acute infectious diseases, there may be an absence of pain; and we often see, during the convalescence, that the temperature goes up for some unknown reason. If the ear has not been examined, it is not an infrequent occurrence to have a discharge from the external auditory canal as the first evidence of middle ear involvement. Symptoms of impaired function, such as tinnitus, are rarely complained of, even by older children, although the parents may notice a loss of hearing. Fever is always present in the suppurative variety, but is usually absent in the catarrhal, when the etiologic factor is afebrile. Two significant symptoms of acute ear disease in infants are the attempt to get the hand up to the side of the head affected, and rolling of the head from side to side. The latter symptom has been spoken of so much that an occasional diagnosis of ear disease is made without careful examination, and later it is found that this action is due to other causes.

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Occasionally, actual convulsions, followed by coma, are seen in young children suffering from an acute middle ear condition. This is caused by an irritation of the dura through a dehiscence in the roof of the attic, due to an open petrosquamosal fissure. With the development of pus, the redness becomes intense; there is bulging of more or less of the entire membrane and an obliteration of all the landmarks, and it is exceedingly difficult to decide where the posterior wall of the bony canal ends and the tympanic membrane begins. In a case that was originally sterile, as a hydrops exvacuo, and in which the fluid has become infected or present in such quanity as to cause bulging, we will see a rather faint yellow discoloration of the ear drum, with bulging in the posterior half. I wish to emphasize this particular point, as, in a casual examination of the ear, this may possibly appear as a normal ear drum, when one has in mind the more usual picture, with the intense redness or dusky discoloration. In this type of case, the cone of light also will often be present, which is likewise misleading. Complicating some of the acute infectious diseases, particularly influenza, there are frequently formed hemorrhagic blebs, either on the membrane proper or on the adjacent wall of the canal. A mere pricking of these blebs is frequently done, the operator feeling that he is incising the membrane, but procures no relief from the pain and other symptoms.

By far the best treatment for acute catarrhal otitis media is rest. Accompanying this, eliminative treatment should be given and, if the case is seen early enough, small doses of aconite, and powder of ipecac and opium (Dover's powder) in doses depending on the age of the patient. Locally, heat, applied in one of several ways to the tympanic membrane, is by far the best means of relieving inflammation. Hot irrigations with physiologic sodium chlorid solution, or just plain sterile water, every two or three hours, will give prompt relief. The best method of administering these hot douches is to use an irrigating can with a small glass tip, having the can held not higher than the level of the patient's head when it is in position to receive the treatment. This point should be made emphatic to the nurse or attendant. The amount of solution used should be from 1 to 2 quarts (liters), and the temperature about 110 F. The commonly used 10 per cent. of phenol in glycerin is an admirable composition and accomplishes good in three ways: (1) by the heat, as all such drops should be thoroughly warmed before instilling into the canal; (2) by the hydroscopic action of the glycerin, and (3) by the anesthetic and antiseptic effect of the phenol. The ear should be protected from cold air at all times during an inflammatory process, and I usually advise wearing a light cap with a pad of cotton over the ears.

In addition to the general treatment and that applied directly to the ear, we must not forget the source of infection—the nose and throat. For this purpose, any of the several drugs that have an astringent action, sprayed or dropped into the anterior nares, will usually accomplish the desired effect. My own preference is either a camphor-menthol solution in the strength of 3 grains each to the ounce of liquid petrolatum, or a mixture of cocain alkaloid, 2 grains, camphor, 1 grain, and 4 drops of oil of lavender or rose geranium to the ounce of liquid petrolatum. Flushing of the nose, I feel, is liable to scatter the infection into the eustachian tube and the accessory sinuses; but, if the swelling of the mucous mebrane is reduced, the nose will usually take care of its own drainage. In my observations, I have found that the colloidal silver preparations which are so commonly used in nasal conditions of this type are more of an irritant and will increase the flow of mucus; and the harm thus done outweighs any beneficial results gained from their antiseptic powers. Postnasal irritation can be relieved by local application of the camphor-menthol solution. It would be exceedingly advantageous when adenoids and hypertrophied tonsils are present to remove them; but, except in cases due to these causes alone, we must forego this procedure, as it is obviously impossible to operate during the course of an acute infectious disease or in the presence of a general involvement of the upper respiratory tract.

When we find that we are dealing with a purulent otitis media or large collection of fluid in the middle ear, there is but one treatment and that is free incision. I use the word incision in contradistinction to paracentesis, as a mere puncture will but drain for the time being and will later on probably have the same effect as a spontaneous rupture. We must remember that a rupture of the ear drum is not a wound with even edges, and it is not caused by pressure, just as a toy balloon will burst when blown beyond its limit of elasticity; but, layer by layer, the membrane sloughs, and the result is a ragged-edged wound, which is more liable to remain a permanent perforation. This operation is preferably performed under general anesthesia; but, unfortunately, many of these conditions arise in bedridden patients in whom the underlying causes contraindicate ether or chloroform (and nitrous oxid is not readily obtainable in private homes), so that we must use a local anesthetic or none at all. The local anesthetic that I use is composed of equal parts of cocain, menthol and phenol, the solid drugs being rubbed together to form a syrupy liquid. My experience is that the membrane can be incised with no more discomfort to the patient than is caused by introducing a local anesthetic. The place to make the incision is over the point of greatest bulging, which is almost always in the posterior part. This is also the correct position from the anatomic standpoint, as there is more room between the handle of the malleus and the tympanic ring, and the distance between the internal wall of the cavity and the tympanic membrane is greatest in this quadrant. Furthermore, it will give a direct route for drainage from the mastoid antrum. Incision should be carried to the floor and slightly curved. Following incision, it is of great advantage to remove the secretions from the middle ear by means of a small suction apparatus.

I have mentioned that this operation should be performed in all cases of acute suppurative otitis media and in cases in which there is bulging of the membrane from fluid in the middle ear, even though it be sterile; but there is still another important indication; namely, the more violent cases of acute catarrhal otitis media, arising during the course of acute infectious diseases. Under these circumstances it is safe to incise the membrane without waiting for bulging, as we can be definitely certain that infection will occur and spontaneous rupture may take place in an incredibly short time.

The after-treatment is of the utmost importance. After the membrane has been incised, the ear is best left alone until the discharge becomes purulent or very profuse (which usually takes place in twenty-four hours); and then irrigations should be started. For this purpose, I prefer a 1:5,000 solution of mercuric

chlorid, more for the purpose of insuring a sterile solution than for the antiseptic effect on the suppurative process. The object of the irrigation is two-fold: (1) it reduces inflammation by the application of heat, and (2) it keeps the canal clear so that the flow of secretion from the middle ear will not be impeded. When the patient is visited by the physician, the canal should be thoroughly wiped dry and a 2 per cent. silver nitrate solution applied to the membrane, particularly in the region of the orifice. After the purulent stage has subsided and the discharge becomes mucoid, an astringent solution should be dropped into the ear after irrigation. For this purpose, zinc sulphate, lead acetate or copper sulphate in 2 per cent. aqueous solutions is very useful. Here, again, the colloidal silver preparations are frequently used; but I have failed to see any beneficial results, and the staining of the tissues is often misleading to the eye. The usual duration for discharge from the ear varies from a few days to four or six weeks, although in some cases it may keep up longer.

COMPLICATIONS

In every case of middle ear infection, there is an involvement of the mastoid process. This may be confined either to the mastoid antrum or diffused over the entire process. It would be difficult to conceive of an infective process attacking the middle ear without extending by continuity of structure through the aditus ad antrum into the antrum. Fortunately, the percentage of surgical involvement, i. e., necrosis, is very small. Two years ago, when the type of infection met was exceedingly virulent, of eighty cases of acute suppurative otitis media that came under my care during a period of two months, and which were seen from the onset and before spontaneous rupture of the membrane had occurred, but four required surgical treatment of the mastoid; so that I believe we can safely count on recovery in from 97 to 98 per cent. of the cases without opening the mastoid, provided the patients receive the proper care from the beginning. The mastoid tenderness that is almost always present during the early stage of acute suppurative otitis media can usually be promptly relieved by the application of cold, in the form of either a Leiter coil or an ice bag. This treatment should be kept up continuously for from twenty-four to forty-eight hours. If continued for a longer period, it will accomplish nothing further but may mask other symptoms that might arise.

When to operate and when to procrastinate are not always easy questions to decide. Of course, when there is swelling, redness and tenderness over the process (the so-called classic symptoms of mastoiditis), indicating an erosion through the cortex; or when, with a profuse purulent discharge, there is a septic temperature after the first week that is not assignable to other conditions, then the indications for surgery are obvious. The mastoids which do not present these symptoms, however, and yet demand surgical interference, are more usual than is ordinarily supposed. It is not unusual to find an extradural or perisinus abscess at operation in a patient who has had neither tenderness nor rise of temperature, and who is apparently well except for the discharging ear. Drooping or bulging of the superior and posterior wall of the bony canal adjacent to the tympanic membrane and the presence of discharge are sufficient indications for surgical intervention, regardless of the absence of other signs and symptoms. The character and duration of the discharge must also be considered; as a persistent purulent otorrhea, which perhaps is not immediately dangerous to life, carries with it the possibility of becoming chronic and thereby destroying, to greater or less extent, the sense of hearing, and producing, at some future time, one of the dreaded intracranial complications. If a case is at all doubtful, it is better to subject the child to post-auricular drainage, as we are fairly safe in counting on complete recovery in practically 100 per cent. of the cases. If the discharge is mucoid in character, without giving evidence of progressive destruction of the tympanic membrane, it can usually be cleared up (after the removal of adenoids and hypertrophied tonsils) by the administration of a mixed catarrhal vaccine. I have had almost universal success with this line of treatment in this particular class of cases.

The roentgen ray has become a strong factor in mastoid diagnosis. When this work was first attempted, not much reliance could be placed on it; but with improved technic, and with careful comparison, by the roentgenologist and otologist, of the picture with the operative findings, the value has been established; and many cases in which the findings are obscure can thus be correctly diagnosed. The blood picture is of value when it shows a leukocytosis and increase in the polymorphonuclears, but should be ignored as a negative diagnostic point. The explanation of this is easily found in the fact that the pus lies in a bony cavity from which there is little absorption until the lateral sinus or dura is exposed by erosion.

Of the trinity of intracranial complications of suppurative middle ear disease, diffuse purulent meningitis is almost always fatal. The majority of these cases can be prevented by a mastoid operation before such a condition arises. There are, however, rapidly fulminating cases which nothing can stop, and in this class there is usually very little necrosis of the mastoid. Brain abscess is a less common complication in the acute otorrhea, and here again prompt surgical intervention in a case of mastoiditis will usually prevent its appearance; but when we do meet it, it is more amenable to treatment than meningitis. Lateral sinus thrombosis is far more common in children than is generally supposed; and it is more difficult to diagnose in children than in adults. The percentage of recoveries is fairly high if the condition is relieved by operation before other organs become involved or a general septicemia of a severe type manifests itself.

CONCLUSIONS

1. Examination of the ear in children should be made routinely, whether or not there are local evidences of involvement.

2. The early recognition and proper treatment of acute suppurative otitis media will prevent the majority of cases of mastoid necrosis.

3. Early surgical treatment of mastoid necrosis is the only means of preventing chronic otorrhea or the intracranial complications.

Sixteenth and Spruce Streets.

ABSTRACT OF DISCUSSION

Dr. Walter E. Simmonds, Chicago: I have found that there is danger in having any one other than the physician, or a nurse in whom I have the utmost confidence, irrigate the ear because the infection will spread in a tube which is more or less closed. When there is moisture, try the dry treatment, swabbing the ear with alcohol, and then instilling phenol

(carbolic acid) and glycerin. It seems to work better. Considerable experimental work has been done on the effect of draughts and cold on infected ears. Dr. J. J. Moore and I found that rabbits that were exposed to the electric light rays in a closed box under a proper regulated temperature controlled by a thermostat either did not develop lesions or had fewer or less severe lesions than those that were not so treated. I found that children would readily get otitis media when exposed to drafts after colds or grippal infections. I attended three families in succession in the same flat, which was cold and damp. I had a child with acute otitis media and told the parents that I did not think we would get good results from treatment unless we removed the child to a hospital. The child was taken to a hospital, and the first night the symptoms subsided, the temperature went down, and the pain disappeared. After about ten days, the child was returned to the flat and the next day there was a complete recurrence of pain and symptoms. I apply heat to the part by using an electric bulb, hot boric acid applications or a hot water bottle. A hot salt bag is very useful. Any one can apply the rays from an electric light bulb continuously to the region of the ear.

DR. OLIVER W. HILL, Knoxville, Tenn.: I would urge a routine examination of every child that comes under observation if it shows any sign of coryza or upper respiratory tract infection. Many otologists are not certain as to when to interfere with an acutely infected ear and when to practice watchful waiting. I should like to hear some one who has had experience explain how to determine, by the physical appearance of the ear, the type to interfere with and the type to let alone.

DR. HENRY DIETRICH, Los Angeles: As to the time to interfere with ears, I do not believe that the physical appearance of the ear drum alone can determine that. Another factor is that the virulence of the infection varies from year to year. An ear which must be incised during one epidemic need not be incised during another. During the epidemic two years ago, It was found advisable to incise almost every ear that showed any particular change, and at that time complications on the part of the mastoid and sinuses were common. This year our experience is quite different; that is, an ear drum which had the appearance of the ear drum of two years ago would heal under proper medical care.

DR. CLIFFORD D. SWEET, Oakland, Calif.: Too much emphasis cannot be placed on the routine examination of the child's ear. It is important to impress on parents and general practitioners the importance of this as part of the general examination, and that there is no symptom on which you can depend to make the diagnosis. I have seen the most virulent infection, with no sign from the child that would call attention to the ear. One must be able to recognize the normal drum and also the appearance of the drum as the inflammatory process recedes or progresses. With regard to the question as to whether to incise or to wait: First, if there is any doubt, a skilfully done paracentesis can do no harm; but it should be remembered that if the paracentesis is made too early before the process in the ear has progressed sufficiently, the incision will close up in from twenty-four to thirty-six hours, only the upper part remaining open, and you will have to repeat the paracentesis. Of course, all of the clinical symptoms of the condition must be taken into consideration in deciding when to interfere and when not to interfere. The question as to when to interfere in mastoid involvement requires more skilful team work than any other single point. No ear discharges very long without involvement of the mastoid, and I think that as soon as it can be definitely decided that the mastoid is involved, it should be interfered with surgically because of the serious consequences which may follow. I was on the advisory board through which men passed in the draft, particularly from such communities as San Francisco Bay, where the climate is damp, and 4 per cent. of the men were rejected because of chronic ear conditions. We found that they had chronic ear disease which lighted up with colds. It was apparent that these cases could have been cleared up by operations on the ear or tonsils and adenoids at the proper time.

DR. W. MCKIM MARRIOTT, St. Louis: I would like to draw attention to two points in the symptomatology of otitis media in infants. One is that the otitis media may occur without any rise in temperature, even when there are definite signs of pus in the middle ear. The only symptom noted may be a failure to gain in weight. The second important symptom which may also occur, even in the absence of fever, is vomiting. This symptom is often promptly relieved following paracentesis.

DR. S. HERMAN LIPPITT, Milwaukee: Something was said about the child's holding the hands to the ear or rolling the head from side to side in middle ear disease. I have found those symptoms absolutely untrustworthy. The only way to make a diagnosis is by the routine use of the electric otoscope. I have found that following cases of tonsillitis and upper respiratory infections, many cases of otitis media developed one year, and the next year, following the same types of infections, cases of pyelitis were numerous.

DR. A. SPENCER KAUFMAN, Philadelphia: With regard to the indications for incision, there is one point to which I want to call attention, and that is, a retraction of the membrane with redness in an acute catarrhal otitis media is really a contraindication to incision; and, when a membrane is incised too early, the slight hissing sound is caused by the air rushing into the vacuum that has been created by the sealing off of the tube. I was glad to hear Dr. Dietrich mention the varieties of infection one meets in different years. This year it was not an uncommon thing to see a septic temperature (such as one would expect to find in a sinus thrombosis) accompanying a simple otitis media which cleared up without a surgical mastoid involvement. The experience in examining the draft men very forcibly brings to our attention the necessity of the early care of these cases. There is no excuse for a chronic discharging ear. If the discharging persists, postauricular drainage will, in practically all cases, clear it up. I think the class of cases that Dr. Marriott referred to, the afebrile cases of otitis with discharge, usually comes during the period of dentition in infancy. We all must recognize that infection of the middle ear comes too frequently during dentition to be a mere coincidence, and very often the first symptom will be the evidence of discharge.

SEQUELAE OF EPIDEMIC (LETHARGIC) ENCEPHALITIS*

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Recent literature on epidemic encephalitis has been so extensive that any addition may be a bore. Nevertheless, such a probability is here risked in the hope of presenting a reasonably simple working classification of the sequelae of that disease. H. G. Wells, writing of the education of the middle part of the last century, recently said, "The test of a good style was its abundance of quotations, allusions and stereoptyped expressions." With all deference to the extensively reviewed writing and opinions of others, the practice that Wells scorns will be avoided on the ground that the literature is readily available and that time limits will permit of few excerpts. These remarks are based on an examination of 145 patients with epidemic encephalitis, ninety of whom were examined during acute and fifty-five during chronic stages of the disease or because of sequelae. Many of the patients were examined at remote distances and under circumstances that prevented detailed records. Accordingly, an exact statistical study will not be attempted, nor is it essential for present purposes. Be it sufficient that no case was included that seemed diagnostically doubtful; but, conversely, that to the list might be added a considerable

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number of cases insufficiently investigated which were probably due to epidemic encephalitis.

Of the ninety acute cases, twenty-four are known to have been fatal, giving a known mortality of 26 per cent., with six or seven cases that may have terminated and probably did terminate fatally, so that it is quite likely that the total mortality was nearer 33 per cent. The cases here discussed were taken from the remainder of these ninety cases plus the group of fifty-five cases seen during chronic stages or because of sequelae, which cases were themselves the residue of other groups whose mortality is unknown. All of these cases occurred between late October, 1919, and January, 1922. The epidemic which furnished them moved in waves, the first lasting during October, November and December, 1919, with lesser waves in January and March, and complete subsidence by May, 1920. During this period, fifty-four acute cases were examined. From October, 1920, to April, 1921, there was an almost continuous series numbering thirty-six acute cases which were much less severe than those of the preceding winter, with a death rate little more than half as great.

The succeeding remarks will be limited to the subject matter predicated by the title of the paper.

COMPLETE RECOVERY

So many patients have been left with disagreeable sequelae that doubt has often been expressed as to whether any patient with epidemic encephalitis ever fully recovers. Apparently many have been left little the worse as a result of this infection. After deducting the fatal cases, probably one third of the patients are now well, though with rare exceptions convalescence was prolonged and he was indeed fortunate who, having suffered from encephalitis, was quite well at the end of a year, though many resumed work in from three to six months. The remainder are still uncomfortable, many of them helpless, more in a condition of semi-invalidism which permits of some activities but robs life of much of its joy. These unfortunates may be divided into four principal groups. For descriptive purposes, the order of grouping is that of increasing ratio of interest rather than of numbers.

FOUR GROUPS

Group 1: This group is least numerous, though not without interest, and is composed of those who in the acute stages exhibited myoclonus symptoms and who still suffer from muscular jerking and twitching, though in steadily decreasing severity. There are but two pronounced cases in the nonfatal group, and in each, stabbing, lightning, neuritic pains characterized the early stages of the disease, and the patients still have considerable twitching but without pain. They exhibit neurasthenic symptoms, have performed no continuous labor, and belong also in Group 3. They will not here be further discussed.

Group 2: This is composed of those who exhibited definite psychoses. The most common characteristics of these were suggestive of dementia praecox, with one paranoid case.

Group 3: This is composed of those who showed symptoms suggestive of neurasthenia or psychoneurasthenia. No attempt will here be offered to theorize on the pathologic reasons for the persistence of symptoms as between organic lesion, toxic condition, or pure psychopathy. This is the largest of the four groups.

Group 4: This group is composed of those who exhibited signs of gross organic lesion of the brain or cord. It may be divided into three subgroups, the symptoms of which suggest:

(*a*) A single unilateral brain lesion producing some such disorder as hemiparesis.

(*b*) Lesions limited to the pons or medulla or both, causing persistent oculomotor or bulbar disturbances.

(*c*) Disseminated lesions, most classically revealed in the production of parkinsonian symptoms with many attendant and variable side effects.

PSYCHOSES

Psychoses (Group 2) were, of course, present in a large number of the acute cases. They persisted or developed as sequelae in not less than five cases, but had no pathognomonic characteristics. The symptoms suggested that the patients were predisposed to mental disorders and that the psychoses were excited rather than caused by the infection. Four of these patients were constitutional psychopathic inferiors, and in each the manifestations were typical of dementia praecox with plainly discernible hereditary elements.

In one instance, a child, aged 6 years, had the daily habit of getting into a catatonic position late in the afternoon with his body curved forward, his neck backward and his eyes directed upward as if toward some picture high in the air and maintaining this position continuously throughout the night until 7 or 8 o'clock the next morning, when he would go to sleep, only to resume the strange position the following afternoon. This he continued for about two months, when he was first brought for study. There was a definite history of encephalitis with double vision and other clinical concomitants four months preceding the psychosis, which was accompanied by partial speech inhibition, unwillingness to take food and other commonplace symptoms suggestive of catatonic dementia praecox. The spinal fluid contained 8 cells per cubic millimeter, with no other changes, and puncture was followed by temporary recovery with resumption of the catatonic position two months later. Further track of him has been lost. The mother of this child was a psychopathic inferior, and the father a nonentity.

Three other cases of well defined dementia praecox type were noted, each following seemingly indisputable attacks of epidemic encephalitis. In all of these cases there was good reason to believe that the psychosis was that of dementia praecox and that the encephalitis acted as an excitant of predisposed patients, just as war shock or other unusual experience acts on psychopathic personalities.

The most disastrous psychosis occurred in a man, aged 59, who, following a personally observed prolonged typical attack of epidemic encephalitis, returned a year later. At this time he suffered from typical paranoidal delusions of persecution, with hallucinations of sight and hearing. He believed that his wife was conspiring against him and that she was untrue to him. He transferred his life insurance to other members of the family, changed his will, made an unsuccessful attempt to kill his wife by shooting her, and then committeed suicide. Prior to his infection they had lived amicably, but he had always been penurious in proportion to his wealth, peculiar in certain ways, and there was a strong suggestion that the encephalitis acted as an excitant rather than the entire cause of his psychosis.

NEURASTHENIA AND PSYCHASTHENIA

The largest group (Group 3) was made up of those who became neurasthenic or psychasthenic or both. The exact number so affected is not definitely ascertainable for, on the one hand, they departed from the normal so little and, on the other hand, shaded so gradually into the territory of the psychoses that it would be hard to say where neurasthenic and psychasthenic sequelae began or ended. Almost constant sub-

normal blood pressure, anemia, vertigo, fatigability, deranged appetite, gaseous eructations, spinal weakness, tachycardia and palpitation, difficulty in mental concentration, poor memory, restlessness and insomnia (especially severe in two cases) form an unmistakable complex. Of interest in connection with the preceding double vision was the persistence of oculomotor asthenia, in some cases still present at the end of three and one-half years since the original infection. These patients uniformly complained of difficulty in reading, typified in the statement of one of them made three years after infection, who said, "I can use my eyes very well, but they do not want to work." With ordinary test cards his vision was good, there was no difficulty in distinguishing words or letters, but after reading a short time he wanted to quit, the type blurred, his eyes were fatigued, his mind would not concentrate, and he soon gave up reading as an unpleasant and laborious task. Though previously a capable electrician, he is still unable to work except part time and on small, unimportant jobs. Most of the patients with this oculomotor fatigue dislike moving pictures, bright lights, undue exposure to light, and any labor which involves prolonged and concentrated thought or action. In a word, they are typical psychoneurasthenics with predominance of oculomotor symptoms. It is hard to escape the conviction that some of them were neurasthenics in advance of the affection. In fact, with several of the worst cases this is known to have been the case. In varying degree these neurasthenic symptoms remain in a large percentage of the entire group which forms the basis of this discussion. Many belonging to Group 3 should recover.

Fundus examination in many cases suggests certain changes which, owing to apologetically acknowledged lack of real expertness with the ophthalmoscope, may be imperfectly described, consisting of slight blurring and indistinctness of the outlines of the disks and of the retinal blood vessels, both veins and arteries. There was no case of true papillitis or papilledema or optic nerve atrophy, and such changes as persist are comparatively slight and might escape notice were one not looking for them. Pupillary inequalities and sluggish reactions, especially in the parkinsonian cases, were common, and in at least three cases rigid pinpoint (Argyll Robertson?) pupils were noted.

ORGANIC LESIONS

Hemiparesis.—Two patients remain hemiparetic. One was distinctly hemiplegic for six months, after which his gait and faulty hand position slowly improved. The leg is still slightly rigid, and the forearm and hand seek a somewhat flexed position across the lower part of the abdomen in a manner suggestive of hemiplegia. The minds of both these patients have lost their flexibility, and they meet with difficulty in creating new thoughts or new ideas, though both pursue their businesses reasonably well but without the vigor and enthusiasm of bygone days.

Pontile Symptoms.—Several patients still exhibit weakness of one or more ocular muscles accompanied by slight strabismus which they are able to overcome temporarily by an effort. One man has a rather complete ophthalmoplegia, with marked limitation of motion of the eyeball in all directions. A woman, one year after an attack of fever accompanied by double vision from which she recovered, suddenly without warning developed inability to raise her eyeballs above the horizontal level, that is, she has paresis of both superior rectus muscles. There is some ptosis, and her habitual attitude is one in which the eyeballs turn down as if she was reading a book in her lap. All of the patients with oculomotor palsies excepting the last one belong to the parkinsonian group, but this one has no other symptoms suggestive of that disorder. These oculomotor symptoms seem clearly to point to a chronic poliencephalitis superior.

Bulbar Symptoms.—Those who present sequelae suggesting lesions of the medulla were relatively few, probably because lesions of the medulla were usually fatal, except as medullary symptoms were present in certain of the parkinsonian cases. Three patients with typical parkinsonian symptoms periodically find difficulty in swallowing, and suffer from excessive salivary secretion and constant trembling about the lips and tongue which suggest incipient bulbar paralysis. Since there has been a steady advance in the symptoms of these over many months, there is justification for the fear that they will eventually die from involvement of the bulb.

Parkinsonian Cases.—Twelve patients with a marked parkinsonian syndrome remain, 10 per cent. of the nonfatal group. At least four of the fatal cases were of the parkinsonian type, so that the total number of cases of this complex was approximately 11 per cent. In addition, some of those classified as neurasthenics showed slight blankness of expression, rigidity of movement and other mild parkinsonian symptoms, which have gradually diminished. The parkinsonian disorder was characterized by the early development of loss of expression, staring, unwinking eyes, muscle rigidity and gait difficulties, all of a type similar to the second stages of paralysis agitans but without the characteristic tremor. Three patients suffer from excessive and annoying salivary secretion. In addition to the more or less characteristic rigidities there was, on occasion, a tendency to the assumption of strange and unusual positions, in a sense not dissimilar from that already described in the child who appeared to suffer from catatonic dementia praecox. A man, aged 23, who is excessively rigid, has lain for many months face downward on a couch with his hands drawn forward under him in characteristic parkinsonian fashion. When erect, he finds difficulty in turning his body, moves slowly, and walks with a rigid gait. When left alone he resumes the prone position. His mind acts slowly but clearly, and his speech is hesitating.

It was early noticed that these patients lacked the characteristic tremor of agitans. Some tremor has been present in most of the cases, but with one exception has never been constant. It has sometimes appeared in one hand or one leg, sometimes has been under control, and sometimes has suggested the intention type; but, in the main, when patients were under observation it has been absent, that is, controlled. An exceptional tremor occurred in a patient already described as suffering from ophthalmoplegia. This man suffers from continuous tremor involving his entire body, including his vocal cords, so that his voice has a bleating sound. The tremor lacks the characteristic pill rolling motion, and is much more rapid than agitans.

Parkinsonian symptoms appeared in patients from 21 to 65 years of age. In only one of this group were the characteristics typical of paralysis agitans. This was in a man, aged 65, who gave a clear-cut history of onset

with double vision, fever and lethargy, but was unable to tell when he first began to shake. It seems reasonable to suspect that here was a patient with incipient paralysis agitans who also had the misfortune to contract epidemic encephalitis.

A final curious result of complication of the parkinsonian sequelae occurred in a woman, aged 48, who now, nearly three years after the date of infection with typical epidemic encephalitis, is expressionless, rigid in gait, and has a blood picture of pernicious anemia.

COMBINED AND ATYPICAL SEQUELAE

Though an attempt has been made to separate the different types of sequelae of epidemic encephalitis, it has not been easy to classify every patient, for the reason that some patients could be classified in two or even three groups. Some of the neurasthenic patients had partial ophthalmoplegic disturbances. A violently agitated patient, twice discussed, suffered from parkinsonian syndrome, ophthalmoplegia and pronounced psychosis and muscular jerking; in fact, he might have been classified in any of the groups.

Occasionally, patients have complained of atypical sequelae, such as neuritic pains which were not of sufficient frequency or distinctness to warrant separate classification. No postencephalitic convulsions occurred. There was apparently complete absence of visceral lesions as distinct sequelae, though in two cases, after the acute onset of the disease, glycosuria of marked degree was observed, and it is possible that search over the entire group might reveal other cases showing visceral lesions. It is probable that in both these cases the glycosuria was due to irritation of the fourth ventricle, but it is not unreasonable to assume that, if long continued, such irritation might result in permanent changes in the glycogen-forming organs.

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ABSTRACT OF DISCUSSION

DR. M. A. BLISS, St. Louis: Among the sequels of epidemic encephalitis as observed in St. Louis, the most striking thing we noted was the great similarity to the remissions and exacerbations of multiple sclerosis. We have patients who improve so markedly that we think they are well on toward recovery, and then the symptoms recur. That has happened in our experience many times.

DR. F. E. COULTER, Omaha: We are very frequently asked: Will these patients recover? How long are they going to be ill? Are they going to be as well as before they were attacked with this disease? Sufficient time has probably not yet elapsed to answer those questions accurately. I was glad to hear the optimistic views expressed by Dr. House. My own experience has not been quite so optimistic, especially with those persons who have had this disease in early life. I wish he would tell us concerning these results in children. The cases in children seem to have resulted in the most havoc, for the greatest destruction to the mental and nervous apparatus is found in the children. The longer the duration, the more severe the condition has been; also, the longer the period of lethargy, the more serious has been the result so far as sequels are concerned, especially in connection with children.

DR. WALTER L. TIMME, New York: I believe that the death rate is not nearly so high as Dr. House represents his to have been. I think the reason for the high death rate reported by him is that a great many persons with the disease in a very mild form seldom come under the observation of the specialist or go to the hospital. These cases are seen by no one at all, or by a family practitioner, who sees the patient for a day or two in a mild febrile state, prescribes some therapeutic treatment, and the patient recovers. I am convinced that a great many cases of this kind escape us entirely, and hence our mortality statistics must be taken with that reservation. Dr. House mentioned the Argyll Robertson pupil. I have never seen in these cases a true Argyll Robertson pupil. It is a pupil which reacts perhaps not at all to light, or possibly very sluggishly, but is also accompanied by an accommodation spasm, so that we have a definitely fixed pupil rather than one that reacts to light and not to accommodation. Occasionally we see a case that shows the marked effect of the infection on the vegetative nervous system and the related organs. In a certain number of cases these patients become very adipose as a result of the attack, an increase in weight of 60 or 80 pounds in the course of six months being not at all uncommon. Another type of case seen only seldom is one in which there is a bronzing of the entire body within four or six months after the attack of encephalitis. The intense asthenia seen in true Addison's disease is also present.

DR. GEORGE A. MOLEEN, Denver: I do not think any disease has been fraught with so many difficulties particularly directed to the neurologist as epidemic encephalitis. I am frank to confess that that has been my experience, and I have derived a great deal of consolation from the fact that both the French and the German journals are replete with instances of the same kind. The widest divergence in syndromes is evident in these reports, in conformity with my own experience. I was interested in the classification brought out by Walsh, in which he segregated the cases into two groups, in accordance with the positive and negative classification of other conditions by Hughlings Jackson. By the positive cases he referred to those which had active muscular contractions with the active mental symptoms, the nystagmus, and the irritative sensory disturbances, particularly pain. The negative types included the anesthesias and paralyses with the associated atrophies, the somnolence and lethargy, and the pupillary or eye paralyses with them. He stated that the prognosis was universally better in the paralytic types than in those which showed the muscular or mental activities, and that has been my experience. Also in the active motor types the sequels are more likely to occur. At the New Orleans session I related a case which had not terminated at that time. The patient was admitted with a bulbar paralysis, the inability to swallow, and paralysis of the tongue. Atrophy of the tongue with sagging of the palatine pillars was followed by paralysis of the shoulder girdle, and a poliomyelitic type paralysis of the lower extremities. Recovery occurred in the same order, and I remember mentioning that his ability to swallow recurred with the presentation of a dish of strawberries. The man went on to complete recovery, and not a single evidence of his condition remains. This is only one case in conformity with Walsh's contention.

DR. W. A. JONES, Minneapolis: We see so many cases that resemble encephalitis that I think for a time we were inclined to diagnose almost every neuropsychiatric condition as encephalitis. I distinctly regret that in one case I emphatically decided that a woman who had a few psychiatric symptoms had an encephalitis. She was sent to the hospital, and within twenty-four hours developed a stuporous state that resembled the stupor of a lethargic encephalitis; she wakened for her meals and was conscious of the activities of the nurse. A puncture of the spinal canal revealed that she had a four plus Wassermann reaction. Her stupor became intensified, and she died in a week. The necropsy revealed nothing in the way of an encephalitis. Aside from her Wassermann reaction she had a large intraventricular tumor of the brain. Previous to seeing this case I had a similar case in which there was the same attitude of somnolence without symptoms of encephalitis, and, singularly, the woman had a large brain tumor. With this confusion of symptoms in the cases that we see now we should be reasonably careful in coming to a definite conclusion.

DR. LEO M. CRAFTS, Minneapolis: One thing that has impressed me is the uncertain chronicity of this condition. I do not think that we yet know how long the process may continue, either directly or its sequels. I have in mind a case of encephalitis in which there was a quite typical attack with paralysis of the left face and arm, with lethargy. The patient apparently made a fair recovery, but was not in really good condition. The following winter he presented

the same clinical picture again and died. I am now observing a young ex-service man who had an attack of influenza in the fall of 1918 and was never well afterward. More than a year later he developed the active picture of epidemic encephalitis. He gradually improved, but has continued to show the parkinsonian picture since that time, without tremor, but with the boardlike expression and automatic movement. He is now steadily retrograding. I believe that he has a continued encephalitis, either a chronic process without the activity of a germ or with it. The cases that have impressed me most have been those that resembled brain tumor. In one case the condition began as a simple nervous prostration, but gradually retrograded. The patient continually spat, an unusual symptom. Later he developed an active cephalalgia that did not yield at all to treatment. He lost motion on the left side, which symptom disappeared. He developed double choked disk, but this definitely receded after spinal puncture and one drainage, and did not recur. In the light of experience with this case I think that this fact, together with the rapid qualitative change in the reflexes from normal to abnormal and back, are the best differential points between actual brain tumor and encephalitis. In the case referred to, resembling brain tumor, with cerebellar nystagmus and falling backward, a double decompression was done at the occipital level. Microscopic examination of the brain revealed some of the characteristic signs of cell infiltration about the blood vessels, but nothing else. I have seen one case simulating spinal cord tumor, beginning with a definite zone of pain in the lower back and only after several months developing delirium, diplopia and the ordinary progress. One of the many striking things is the almost unfailing marked elevation of temperature toward dissolution, usually going to 106 F. or above.

DR. JULIUS GRINKER, Chicago: The question of tumor that may be diagnosed when there is an encephalitis, and, on the other hand, the diagnosis of encephalitis when there is a tumor, was strikingly brought out by a case of encephalitis with choked disk. A colleague had a case with choked disk, which he presented as a case of encephalitis, characterizing it as the second case of encephalitis with choked disk, mine being the first—choked disk being a very unusual symptom of epidemic encephalitis. My colleague's patient died, and the condition proved to be a true tumor of the brain. My patient exhibited choked disk and also showed symptoms which Dr. Crafts referred to and form which he would have made a diagnosis of tumor, but the patient made a perfect recovery. His was a true case of encephalitis. This goes to show that we are likely to mistake organic disease of other types for encephalitis, and vice versa. An interesting point is this: Recently I saw a number of sequels of encephalitis in cases which were never diagnosed as encephalitis at all. These sequels were mostly in the form of postencephalitic rigidity and parkinsonian tremors. I have seen many cases which exhibited this syndrome. These cases occur with preference in young persons. A young boy had what was undoubtedly an encephalitis lasting for six months, during which he was apathetic, drowsy and in bed most of the time—the case was not diagnosed as encephalitis. The condition began with ocular phenomena, a little fever, and undoubtedly must have been encephalitis, though I had no opportunity of seeing the case myself at that time. This boy now presents the following complications, which some one called a genuine sequel of encephalitis: Every alternate morning, sometimes every morning, the boy, after awaking, would run about the room in a frenzy, swear at his mother and jump at her. Aside from these attacks, he was a very well behaved child. This sequel was directly attributed to the encephalitis. The diagnosis appeared doubtful to me. The mother described his attacks as being accompanied by blanching at the lips with change in color of the face, and the suggestion arose: May this not be a form of epilepsy? I gave him phenobarbital (luminal) and he did not improve. Finally, after studying the case I found that at times he did not swear, especially when something harsh was said to him. I then advised the mother to spank the boy every time he had an attack, and he has not had any more. The case was evidently a neurosis of the hysteria group.

DR. CHARLES R. BALL, St. Paul: I remember the first time I saw one of those parkinsonian types of encephalitis. It was at Base Hospital 9, at Chateroux, in 1918. I was called in consultation to see a young soldier who was sitting up in bed with a perfectly masklike expression on his face, and a marked degree of muscular rigidity. I was told that he had recently had a rather severe attack of influenza in which he had been delirious for a number of days. I recognized immediately that here was something new in my experience, something entirely different than I had ever seen before. A few weeks later at Base Hospital 214 at Savaney, at one of our weekly clinical conferences, we were able to show seven cases of this type of encephalitis. The literature has since been filled with a protean symptomatology of the various types of this disease, which present definite somatic findings. At present, because of this extensive literature on this subject, when there are somatic symptoms, the recognition of the nervous sequelae of this disease is not difficult. But what about the other sequels, when there are no objective symptoms, when the history of the attack is vague, and when we have to deal simply with changes in the personality, or with symptoms entirely referable to the vegetative nervous system? We are called on in such cases to explain strange and unfamiliar nervous and mental conditions, which we have previously classified under hysteria and psychoneuroses. We see undoubtedly many such cases among ex-service men, that at present, because of our lack of understanding of these sequels, we are classifying as shell shock. It is in this type of postencephalitic sequel that our most difficult problems in nervous diagnosis are to be found at present.

DR. J. C. MICHAEL, Minneapolis: A case which interested me very much was that of a young man who had delirium for about three weeks. He became quite markedly parkinsonian for a year and a half. Then he suddenly developed acute symptoms again and died. At necropsy the usual pathologic changes of epidemic encephalitis were presented.

DR. FRANK A. ELY, Des Moines: I wish to report one case treated by thyroid. A girl, aged 17, became ill one year before I saw her. She was a pitiable object, unable to continue her work in high school, a typical parkinsonian end-result. As an empiric treatment I asked her physician to give her from 3 to 5 minims of 1:1,000 epinephrin solution hypodermically every other day, and to administer small doses of thyroid, beginning with 1 grain a day and increasing the dose to 5 grains. Within sixty days this girl had regained her usual alert state; her mentality improved; she was able to go about and resume her studies, and recently, about six months after institution of the treatment, I received a report that she was apparently perfectly well. I realize that one case means nothing: it is simply a report for the sake of stimulating observations along that line. I have had one other typical parkinsonian case in a service man who had peculiar respiratory phenomena in which he snorted all the time, a peculiar forcible exhalation. He was very much improved as long as we kept him on the thyroid and epinephrin. As soon as the treatment was discontinued, his respiratory difficulty would return.

DR. WILLIAM HOUSE, Portland, Ore.: Dr. Bliss refers to multiple sclerosis cases. Dr. Bassoe first called attention to the hope that in encephalitis we might find the etiology of paralysis agitans and multiple sclerosis. I think that his hope has not been fulfilled. The results of encephalitis do not appear to be typical of agitans or multiple sclerosis. Dr. Coulter speaks of my optimism in prognosis. I pointed out the difference that existed in opinions, and think my prognoses not too optimistic. I believe that the last group that I presented, Group 4, will have no recoveries, but that the neurasthenic and myoclonus cases will recover. I saw very few children. Most of the cases of encephalitis in children that I saw were fatal. Answering Dr. Timme's comment on the high death rate, six of my first thirteen cases were fatal, but as the epidemic advanced the cases seemed less virulent, in this respect corresponding to experiences with poliomyelitis in which the first epidemic was always much more severe than the recurrences of the following winter. In the second series of cases of encephalitis there were many of the mild type described by Dr. Timme, patients with a temperature of about 101 or 102 F., some delirium and a few days of double vision followed by lethargy and recovery. In regard to the Argyll Robertson pupil, I think that Dr. Timme made a just

correction. These pupils are not Argyll Robertson; they are simply contracted pupils in which responses to both light and distance are greatly diminished. Dr. Moleen speaks of nystagmus. It seems to me that there is no true nystagmus in these cases. The wavering motions that exist are due to muscle weakness, and are a pseudonystagmus and not a true one. As to prognosis in paralytic cases: Mine were severe cases. The patients have not done well, and all of them have some sequel. Of the myoclonus patients, some have died and others have severe mental and physical sequels, except the two mentioned. In regard to the difficulties in diagnosis, I found some trouble in differentiating between brain tumor and encephalitis, especially tuberculous meningitis and encephalitis. In most cases it should be fairly easy to make an accurate diagnosis. A final suggestion in connection with the association between encephalitis and various psychoses may be of interest. Most of my patients were in poor health when they developed encephalitis. They were subnormal, and, in view of my belief that the psychotic cases occurred in psychopaths, it seems to me that subnormal persons are more predisposed to the disease than normal persons.

Clinical Notes, Suggestions, and New Instruments

DEAFNESS FROM PRESENCE OF INSECT IN EAR

PAUL A. HIGBEE, M.D., MINNEAPOLIS

A man, aged 36, stumbled and fell, Feb. 18, 1922, striking on his chin. He was unconscious for a few seconds and, on recovering, experienced a sharp pain in his right ear. After the chin wound was dressed he was referred to me for examination of the ear. The external canal was blocked. A large amount of débris was removed, disclosing tightly packed cerumen, which was removed with difficulty. Following this came the remains of a dead cockroach, 18 mm. in length and perfectly preserved in every detail.

The patient in April, 1908, while preparing for a bath, felt a sudden pain and buzzing in the right ear, which drove him almost frantic. While his wife was telephoning for a physician, he put his head under the water in the tub, and the pain soon ceased. Later, on the advice of his physician, the ear was syringed, but nothing was washed out of the ear, and it was supposed that the trouble was due to a small mite which had been lost in the washing. The patient gradually became deaf in this ear, but never consulted a physician, believing that some irreparable damage had been done to the ear by the insect. After removal of the insect and cleansing of the canal, hearing was fully normal, and the only evidence of injury was a slight abrasion of the drum.

It seems probable that, following the original injury in 1908, the canal became gradually filled with wax, thus entombing the insect in an air-tight space and preserving it in toto for nearly fourteen years.

221 Meyers Arcade.

MODIFIED EINHORN THREAD TEST

EDWARD STEINFELD, M.D., PHILADELPHIA

The equivocal results in the use of Einhorn's thread test in the diagnosis of gastric ulcer and malignancy have been due in part to the difficulty in the recognition of the stains as blood. Though other objections have been advanced from time to time by various observers, it has appeared that modifications tending to render the test more sensitive would be of material aid in increasing the usefulness of the procedure. The outlining, by chemical methods, of the areas on the thread impregnated with blood, renders the identification of faint or doubtful blood stains less difficult. A method utilizing this principle has been used recently, and the results are sufficiently encouraging to warrant its trial as a source of added information in suspected lesions of the stomach and duodenum. The entire procedure is as follows:

The patient abstains from meat on the day the test is done, or for a longer preceding interval if symptoms of pyloric obstruction are present. A "pearl" button (from 7 to 8 mm. in its greatest width) attached to a thread of braided silk is swallowed by the patient at 9 p. m. and washed down by a glass or two of water. A knot at 75 cm. marks the limit to which the thread is allowed to travel. The next morning a mark is made at the part in contact with the teeth, and the thread and button are removed before any food has been given. Successive strips of 10 cm. each, starting from the external dental mark, are tested in a small porcelain dish with the benzidin and hydrogen peroxid mixture which is commonly used for occult blood tests. Stains due to blood assume a green color, and the proximal stain, counting from the mouth end, may be taken as the probable distance of a bleeding area. However, it is not advisable to regard the calculation of this possible site as being positively established. A sensitive benzidin is of value, and a hydrogen peroxid solution not containing acetanilid is preferable. It is possible to make a preliminary trial, using a two or three hour interval only; in some cases this is sufficient to give enough blood impregnation to react definitely. In case of doubt, however, the longer time given above is the method of choice. Oxidations of the benzidin due to the presence of oxydases have not been noted in this technic.

2035 Chestnut Street.

A NEW SEPTAL CHISEL*

CREIGHTON BARKER, M.D., NEW HAVEN, CONN.

This instrument is designed for the removal of the base of the nasal septum and septal ridges. It has been used by a number of rhinologists with gratifying results. Essentially, the instrument is a Freer chisel to which tiny rounded knobs have been added to protect the sharp corners of the blade. The advantage of this protection are clear—it is practically impossible to injure with it the overlying mucous membrane. The projections at the sides of the blades also make it easier

Septal chisel.

to hold the cutting edge against a narrow projection without slipping, and its use with the blade vertical, as in severing a spur, is facilitated thereby.

66 Trumbull Street.

A FILTERING ADAPTER FOR THE ADMINISTRATION OF NEO-ARSPHENAMIN

JAY F. SCHAMBERG, M.D., PHILADELPHIA

During the World War, the practice became common abroad of administering neo-arsphenamin in concentrated solutions in a small Luer syringe. This practice has likewise been adopted by many physicians in this country. It possesses the advantage of simplicity of administration and of time economy, factors which are important when large numbers of patients in clinics are treated.

When concentrated solutions are used with a Luer syringe, and even when larger quantities of water are employed, it is quite possible for minute fragments of glass dust, dust in the water or undissolved particles of the drug to be carried through the needle. Such particles, while not large enough to be readily visible to the eye, may still be of sufficient size to cause an embolism in the minute capillaries of the lungs or possibly other organs. It is probable that the nitritoid and similar immediate reactions which follow the administrations of arsphenamin are due to embolic processes. It is now common knowledge that solutions of neo-arsphenamin

* From the Ear, Nose and Throat Service, Grace Hospital.

which are turbid or cloudy will produce immediate symptoms, characterized often by flushing followed by weakness and sometimes collapse. It is known that acid solutions of arsphenamin produce emboli in the vessels of the lungs, a fact which may be definitely demonstrated in experimental animals. The monosodium salt of arsphenamin injected in the strength of 0.4 gm. in 20 c.c. of water has been followed by the development of embolic bronchopneumonia. The use of the disodium salt, which is produced by neutralizing with excess of alkali, appears to lessen the liability of embolism by reason of the fact that the blood serum is less likely to be precipitated in the presence of the increased amount of alkali. These considerations lend some support to the thought that occasional nitritoid and immediate reactions after injections of neo-arsphenamin may be due to the presence of unsuspected small particles of the character described, which might be readily removed by filtration.

While some physicians filter solutions of neo-arsphenamin, the practice is generally not carried out. If it could be performed without any undue exposure of the neo-arsphenamin to contact with air and increased liability to oxidation, it would be an advantage. The filtering adapter which has been made up for us by the Becton-Dickinson Company gives us an opportunity to secure filtration without increased exposure to air. The adapter consists of a small glass tip about 30 mm. in length which snugly fits the tip of the syringe. Inside the lumen is placed a small pledget of absorbent cotton. When the solution of neo-arsphenamin is poured into the barrel of the syringe, it is readily filtered by

Filtering adapter, indicated by arrow, for administration of neo-arsphenamin.

passing through this pledget of cotton. After filtering in this way, if one removes the pledget of cotton and examines it with strong magnifying lenses, one may often note the presence of minute particles of solid material representing particulate matter of one kind or another, which would otherwise have gone through the syringe from the needle into the vein. One may readily insert the cotton and sterilize the tip in a sterilizer at the same time that the syringe is rendered sterile. The filtering adapter likewise answers the purpose of a safety device, insuring the presence of the needle in the vein when injecting dark solutions of any kind, for the solution remains in the syringe, and the blood may be seen mounting through the filtering adapter.

1922 Spruce Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

EPINEPHRINE (See New and Nonofficial Remedies, 1922, p. 108).

Epinephrin-G. W. C. Co.—A brand of epinephrine-N. N. R. Manufactured by the G. W. Carnrick Co., New York. No U. S. patent or trademark.

Epinephrin-G. W. C. Co.: Vials containing epinephrin-G. W. C. Co. (base), 1 grain.

Epinephrin Chloride Solution-G. W. C. Co.: A solution containing epinephrine hydrochloride, equivalent to 1 part of epinephrine in 1,000 parts of physiologic solution of sodium chloride and preserved with hydrochloric acid (equivalent to HCl, 0.02 per cent.).

PITUITARY EXTRACT-LEDERLE (OBSTETRICAL).—An extract of the posterior lobe of the pituitary body of cattle, approximately two and one-half times the strength of solution of hypophysis, U. S. P., preserved by the addition of chlorbutanol, 0.5 per cent. It is standardized according to the method of G. B. Roth, as modified by R. A. Spaeth (Bull. 115, U. S. Hygienic Laboratory).

Actions and Uses.—See general article, Pituitary Gland (New and Nonofficial Remedies, 1922, p. 213).

Dosage.—From 0.5 to 1.0 Cc. (7 to 15 minims).

Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Ampules Pituitary Extract-Lederle (Obstetrical) 0.5 Cc.
Ampules Pituitary Extract-Lederle (Obstetrical) 1 Cc.

PITUITARY EXTRACT-LEDERLE (SURGICAL).—An extract of the posterior lobe of the pituitary body of cattle, approximately five times the strength of solution of hypophysis, U. S. P., preserved by the addition of chorbutanol, 0.5 per cent. It is standardized by the method of G. B. Roth, as modified by R. A. Spaeth (Bull. 115, U. S. Hygienic Laboratory).

Actions and Uses.—See general article, Pituitary Gland (New and Nonofficial Remedies, 1922, p. 213).

Dosage.—Usually 1 Cc. (15 minims).

Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Pituitary Extract-Lederle (Surgical) 5 Cc. vial.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1922, p. 310).

Parke, Davis & Company, Detroit.

Typhoid Vaccine (Prophylactic).—Marketed in packages of three ampules (*Bio. 427*), one containing 500 million, and two, 1,000 million, killed bacteria each; also in packages of three syringes (*Bio. 426*), one containing 500 million and two, 1,000 million, killed bacteria each.

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 301).

Parke, Davis & Company, Detroit.

Gonococcus Vaccine.—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 271*), each containing 1,000 million killed bacteria; in packages of four 1 cubic centimeter syringes (*Bio. 273*), each containing 1,000 million killed bacteria; also in 5 cubic centimeter (*Bio. 274*), and 20 cubic centimeter (*Bio. 275*), bulbs, containing 1,000 million killed bacteria per cubic centimeter.

STAPHYLOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 306).

Parke, Davis & Company, Detroit.

Furunculosis Vaccine.—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 255*), each containing 2,000 million killed *Staphylococcus aureus* obtained from furuncular lesions; in four 1 cubic centimeter syringes (*Bio. 257*), each containing 2,000 million killed staphylococci; also in 5 cubic centimeter (*Bio. 258*) and 20 cubic centimeter (*Bio. 259*) bulbs, each containing 2,000 million killed staphylococci per cubic centimeter.

Staphylococcus Vaccine (Combined).—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 376*), each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus;* in four 1 cubic centimeter syringes (*Bio. 378*), each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus;* also in 5 cubic centimeter (*Bio. 390*) and 20 cubic centimeter (*Bio. 391*) bulbs, each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus* per cubic centimeter.

VACCINE VIRUS (See New and Nonofficial Remedies, 1922, p. 290).

Parke, Davis & Company, Detroit.

Vaccine Virus.—Marketed in packages containing one capillary tube (*Bio. 560*) for one vaccination with a rubber bulb for ejecting the vaccine and a needle for scarifying, and in packages containing five capillary tubes (*Bio. 561*) for five vaccinations, with a rubber bulb for ejecting the vaccine and a needle for scarifying.

ERYSIPELAS AND PRODIGIOSUS TOXINS (COLEY) (See New and Nonofficial Remedies, 1922, p. 316).

Parke, Davis & Company, Detroit.

Erysipelas and Prodigiosus Toxins (Coley).—Marketed in packages containing five 1 cubic centimeter bulbs (*Bio. 451*) and in 15 cubic centimeter bulbs (*Bio. 455*).

First Practical Clinical Instruction.—Prof. C. Fedeli of Pisa has found records which establish that an Italian physician named Da Monte opened at Padua in 1543 in the Franciscan Hospital a school for practical instruction in clinical medicine. This, he says, was the pioneer institution of the kind. Boerhaave founded a similar one in Leiden in 1714, and Van Swieten at Vienna in 1745. Then came Prague, 1781; Göttingen, 1786; Jena, with Hufeland, 1793; Edinburgh, 1741; Oxford, 1780, and Paris, 1795.

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SATURDAY, JULY 15, 1922

PURER FOODS AND DRUGS

Great reforms are seldom accomplished over night. They are usually the outcome of a slow but unfailing evolution due to prolonged educational effort, sometimes coupled with the vigorous enforcement of new measures. By reason of the gradual appearance of the changes brought about, evidence of actual reforms is often difficult to secure when it is sought at too frequent intervals. This is likely to lead to discouragement at times, unless the searcher takes occasion to let longer periods of efforts at improvement pass in review so that the total accomplishment can more readily be envisaged.

The foregoing comments apply in large measure to the history of the attempts to improve the situation with respect to the marketing of foods and drugs. In this country the cumulative effect of national and state legislation, together with the propaganda of various agencies and the police powers exerted by the proper authorities, has not failed to manifest itself in the last decade. The Food and Drugs Act, the net-weight package laws, and the now numerous local enactments directed to secure similar benefits have left their imprint in a better situation. Nevertheless, in the counsel of perfection the doctrine of eternal vigilance still finds a place. This is illustrated in the latest report of the chemical laboratory of the Connecticut Agricultural Experiment Station at New Haven,[1] to which reference has often been made in relation to pioneer work in the detection of adulteration and fraud in American food and drug products. Thanks in considerable measure to the persistent effort of such laboratories, together with the Council on Pharmacy and Chemistry of the American Medical Association, so-called diabetic foods especially recommended for a class of patients including, in this country alone, a million persons peculiarly susceptible to improprieties of diet no longer continue to be offered for sale in so many instances with utter disregard of the content of carbohydrates, which are supposed to be greatly reduced for the benefit of the sufferers. Only a few years ago there were extremely few "honest" diabetic foods. Today the number of reputable products with truthful claims is largely increased. Yet Bailey's report [1] shows the sale of a "starchless breakfast food" containing more than 64 per cent. of starch, not to mention the additional sugar content. There are "glutenized" cereal products containing 50 per cent. of starch and soluble sugars, yet recommended for diabetic patients. Gluten products containing more than 65 per cent. of available carbohydrate, and therefore no more suitable than ordinary wheat bread for the diabetic, are advertised still; but they have lost their former prominence in the face of an educated medical profession and a cautioned purchasing public.

It is encouraging to note that out of nearly four hundred specimens of U. S. Pharmacopeia drugs examined by the Connecticut Station in 1921, only sixty-two were found adulterated, below standard or otherwise illegal. Most frequently, derelictions were found in the case of bay rum, essence of peppermint and similar products, which have no great significance in therapy. Even solution of calcium hydroxid, which so often has left the druggist's shelf as moderately pure water, having parted company with its content of lime during a prolonged sojourn there, is found to be up to standard with reasonable frequency.

The situation is not ideal, by any means; but the curve of progress is showing an upward tendency.

1. Bailey, E. M.: The Twenty-Sixth Report on Food Products and the Fourteenth Report on Drug Products, 1921, Bull. 236, Conn. Agric. Exper. Station, January, 1922.

ANHYDREMIA AND FEVER

The part played by water in the regulation of bodily heat and the equalization of temperature in the living organism is not as well appreciated as it deserves to be. L. J. Henderson [1] has pointed out that water ranks high with respect to three qualities: specific heat, heat of evaporation, and conductivity. The first favors the storage of heat; the second permits of very rapid elimination when necessary, as when environmental temperature exceeds that of the body; the third allows rapid equalization of heat within the fixed tissues of the body, minimizing the possibility of injury from local overheating within or without.

In this country, both Woodyatt and Barbour [2] have emphasized the part which the distribution of water in the body plays in relation to the phenomena of fever, which has been defined as "any condition of positive heat balance not due solely to food, exercise or environment." An increasing number of investigations in recent years are beginning to demonstrate that noticeable alterations in the water content, that is, the concentration of the blood, occur where they were formerly not suspected. The untoward effects of

1. Henderson, L. J.: The Fitness of the Environment, 1913.

2. A review of the subject is given by Barbour, H. G.: The Heat Regulating Mechanism of the Body, Physiol. Rev. 1: 295 (April) 1921.

such "anhydremia" have already been referred to in THE JOURNAL.[3] Balcar, Sansum and Woodyatt [4] have demonstrated in a striking way how intravenous injections of strong glucose solutions may lead to high temperatures, which they attribute to the concentration of the blood, and the lack of water for giving off heat. Anhydremia in children is attended with serious febrile symptoms, which Marriott [5] has clearly described. In influenza, loss of fluid from the blood prognosticates a temperature rise and a change for the worse, which may often be averted by intravenous administration of fluids.[6]

Facts seem to be accumulating rapidly to help establish these newer views on a firm experimental basis. Water constitutes more than 70 per cent. of protoplasm, the structural basis of organic life.[7] Various drugs seem to modify the water balance, or at least the distribution of water in the body, and thereby affect the regulation of body temperature. A new instance has been described lately by Barbour and Moise [8] in the case of the fever produced experimentally by injections of cocain. The percentage of blood solids and the red blood cell count increase coincidently with the temperature. The return of the temperature to normal is accompanied by dilution of the blood. Antipyretic drugs also have been demonstrated in numerous instances to act in harmony with the ideas just outlined. The problem of the water content of the blood is truly attaining a new significance in many fields of clinical medicine.

RECENT FEATS OF MOUNTAINEERING

The latest news from the Mount Everest Expedition records an ascent by Capt. Geoffrey Bruce and George Finch to an altitude of 27,200 feet. At this point they were only 1,941 feet below the summit. It is stated in the New York *Times* that the mountaineers just mentioned climbed only 400 feet higher than Mallory, Somewell and Norton did on May 21 without oxygen. The latter group broke the record of the Duke of the Abruzzi made on Bride's Peak, which was 24,600 feet. From a physiologic standpoint alone, these are stupendous personal feats. The passive ascent by railway to the top of Pike's Peak at an altitude of only 14,110 feet is productive of noticeable physiologic reactions and, in some persons, of symptoms of respiratory distress. Strauch,[9] who has reviewed the experiences of early explorers with mountain sickness, calls attention to the fact that this malady befalls some persons at a lower, and others at a higher altitude; but that for all there is a critical line beyond which escape is impossible. In some it may occur at 10,000 feet, while only a very few can venture to 19,000 feet without the experience.[10]

The usual explanation of the exchange and distribution of the respiratory gases in the lungs and tissues has involved the view that the gases diffuse from regions of high tension to those of lower tension, and that the membranes interposed are entirely passive in the process. This purely physical hypothesis has not passed entirely unchallenged. The apparent adaptation of many persons to life under conditions of oxygen tension seemingly too low for the normal functions has long attracted attention and led to speculation. Haldane of Oxford has been the foremost scientist to express the belief that an essential factor in acclimatization to altitude consists in a secretory activity for oxygen on the part of the lungs. Obviously, if diffusion is the sole force in the interchange, the oxygen pressure in the arterial blood cannot exceed that in the alveolar air.

The Anglo-American Pike's Peak Expedition [11] of 1913, however, reported oxygen tensions in the arterial blood greater by from 7 to 44 mm. than in the alveolar air. This seemed like clear-cut evidence for active oxygen secretion by the lungs into the blood. The technic of this work has been assailed. Schneider has pointed out that the Scandinavian physiologist Dr. Marie Krogh [12] in 1915 established a new diffusion coefficient for the passage of oxygen through a membrane and showed that, if the figures were correct, it was possible for diffusion to account for the passage of a sufficient amount of oxygen to supply the body needs up to such altitudes as 24,000 feet.

The proponents of the secretory theory have assumed that, although the capacity for oxygen may always exist, it is called forth only during extreme oxygen lack. C. W. and C. H. Greene [13] have given it a rigorous test by studying the arterial blood in animals under conditions of breathing air at a greatly reduced oxygen tension. The lowest inspired oxygen in one experiment corresponded to an equivalent altitude of 53,000 feet, or 10 miles. No evidence was secured in any case to indicate the presence of a higher oxygen tension in the arterial blood than was present in the alveolar air. When alveolar air was exposed to a simultaneous sample of arterial blood, oxygen was absorbed by the blood. Hence Greene concludes that the current conception of a purely physical mechanism regulating the

3. Diarrhea and Anhydremia in Infancy, editorial, J. A. M. A. **76**: 794 (March 19) 1921.
4. Balcar, J. O.; Sansum, W. D., and Woodyatt, R. T.: Fever and Water Reserve of the Body, Arch. Int. Med. **24**: 116 (July) 1919.
5. Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, the Harvey Lectures for 1919-1920, Philadelphia, J. B. Lippincott Company, p. 121.
6. Underhill, F. P., and Ringer, Michael: Blood Concentration Changes in Influenza, J. A. M. A. **75**: 1531 (Dec. 4) 1920.
7. Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. **2**: 116 (Jan.) 1922.
8. Barbour, H. G., and Moise, M.D.: The Mechanism of Cocaine Fever, J. Pharmacol. & Exper. Therap. **19**: 270 (April) 1922.
9. Strauch, A.: Am. J. M. Sc. **142**: 105, 1911.
10. Schneider, E. C.: Physiological Effects of Altitude, Physiol. Rev. **1**: 635 (Oct.) 1921.
11. Douglas, C. G.; Haldane, J. S.; Henderson, Yandell, and Schneider, E. C.: Phil. Tr. Roy. Soc. London, Series B **203**: 271, 1913.
12. Krogh, Marie: J. Physiol. **49**: 271, 1915.
13. Greene, C. W., and Greene, C. H.: The Partial Pressure of Oxygen in the Blood During Progressively Induced Anoxemia, J. Biol. Chem. **52**: 137 (May) 1922.

passage of oxygen through the pulmonary epithelium is confirmed for all stages of anoxemia. These now available experimental facts make the performance at Mount Everest all the more remarkable. In the absence of "secretory" aids, the supreme importance of a state of high circulatory and respiratory efficiency in order to secure the maximal degree of saturation of arterial blood with oxygen becomes emphasized more than ever for the balloonist, the aviator and the mountaineer.

Current Comment

THE ALLEGED INSUSCEPTIBILITY TO INTOXICATION BY POISON IVY

With the advent of the season when rhus dermatitis, following contact with poison ivy, becomes common, a recrudescence of the myths regarding the effects of this plant is certain to ensue. The failure of many persons to exhibit symptoms following apparent exposure to toxic species of rhus has presumably been responsible for the widespread belief that some individuals are not susceptible to the poison. An investigation by Brown [1] in the Department of Pharmacology at the University of Minnesota justifies the conclusion that there is probably a personal variability in susceptibility depending on temperature, condition of the skin, and many other factors which are not yet understood; [2] but he is also convinced that there is no conclusive evidence of such a state in man as entire insusceptibility to the poison. Contrary to the theory of "desensitization" by internal administration of tincture of rhus, it appears that the susceptibility may be increased with successive intoxications.

ROENTGEN-RAY INTOXICATION FROM INJURY TO INTESTINAL EPITHELIUM

Nausea, vomiting, weakness and diarrhea, frequently observed in patients after exposure to large doses of hard roentgen rays, have been ascribed to the action of the rays on the blood and blood-forming organs, because leukopenia, marrow changes and destruction of lymphoid tissue often follow roentgenization. Others have thought, however, that the constitutional reaction results from damage to the kidneys, especially since Warthin [3] described changes in the kidneys of patients treated with roentgen rays. Recently Warren and Whipple [4] have reported the results of experiments on dogs which indicate that systemic intoxication may be due primarily to injury of the epithelium of the small intestine. They found that a unit dose (350 milliampere minutes), given over the thorax with the abdomen shielded, caused no disturbances in the dog, while a subsequent exposure to the same unit dose, in the same animal, over the abdomen, caused a fatal intoxication in four days. The time of the appearance of the symptoms of the intoxication coincided with the cell disintegration, becoming pronounced in the second twenty-four hours. The changes, which affected chiefly the small intestine, were varying stages of necrosis of the epithelium covering the villi and lining the crypts. Only a slight inflammatory reaction was present, and there was little injury to the lymph follicles and Peyer's patches. Warren and Whipple believe that the absence of symptoms after thoracic exposure indicates that the blood and bone marrow cells are not primarily concerned in the intoxication because a greater number of these cells are subject to exposure in the thoracic region than in the abdominal. In other experiments, McQuarrie and Whipple [5] found that large doses of roentgen rays over the renal region of dogs did not cause any changes in the kidneys or any appreciable disturbances of renal function. These experiments on dogs reveal the intestinal epithelium as vulnerable to roentgen rays with resulting intoxication, and the probability is that the epithelium of the small intestine in man may be vulnerable in somewhat the same way. In order to avoid harm, these facts should be borne in mind, when roentgen therapy is being administered.

DOES THE BLOOD CONTAIN CREATININ?

To this question, the student of physiologic chemistry has been taught to give an affirmative reply. The occurrence of creatinin as a normal constituent of the urine is well known, the isolation of the compound being a routine procedure in many laboratories. Whence should this demonstrated urinary creatinin come if not from the blood brought to the kidneys? And have not the blood analysts instructed and entertained us with numerous accounts of the variations of the creatinin content of the blood in health and disease, pointing out the diagnostic or prognostic significance of undue concentrations of this nitrogenous product? Strangely enough, biochemists seem to have been content for the most part to accept color reactions in blood filtrates as proof for the actual existence of creatinin in the blood, despite numerous anomalies and discrepancies that have arisen to perplex the analysts. It has remained, however, for Behre and Benedict, [6] of Cornell University Medical College, boldly to question the current teachings. They are convinced, from analytic evidence which is impressive, that creatinin does not exist in detectable quantities in blood. This conclusion seems somewhat revolutionary, though it helps to bring greater clarity to a much confused subject. The blood does contain creatin which Behre and Benedict have actually identified by direct methods of examination. Moreover, the creatin content increases in the blood when the renal functions are held in abeyance. Creatin in abundance is always found in muscle tissue. We may therefore assume

1. Brown, E. D.: Experiments on the Variability in Susceptibility to Poison Ivy, Arch. Dermat. & Syph. **5**: 714 (June) 1922.
2. McNair, J. B.: Susceptibility to Dermatitis from Rhus Diversiloba, Arch. Dermat. & Syph. **3**: 625 (May) 1921.
3. Warthin, A. S.: The Changes Produced in Kidneys by Irradiation, Am. J. M. Sc. **133**: 736, 1907.
4. Warren, S. L., and Whipple, G. H.: Roentgen-Ray Intoxication, J. Exper. Med. **35**: 187 (Feb.) 1922.
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for the present that the creatin in the blood represents a waste product discharged into the circulation and awaiting excretion by the kidneys, which convert it into creatinin in the process of elimination. The new view "fits the known facts." It explains the increase in blood creatin content when the kidney activities are impaired. It renders conceivable that creatin may occasionally escape unchanged into the urine, as has so often been asserted. We venture to believe that a new chapter in the solution of the difficult problem of creatin-creatinin metabolism has at length been opened.

THE HIGHER EDUCATION OF CHIROPRACTORS

What is your favorite light literature? Detective stories? Mystery stories? Humor? Have you ever read the publications issued by the various species and subspecies of the chiropractic cult—for there is, as you know, a lack of unanimity among the chiropractors. One particularly choice piece of contemporary journalism is issued by a chiropractor factory in Fort Wayne, Indiana. Its July, 1922, issue makes good hot weather reading. The editor discusses a "model bill," recently drawn up by those chiropractors of Indiana who belong to a different subspecies from those represented by the publication in question. This Fort Wayne journal views the bill with disfavor. It says, with refreshing naïveté:

> To begin with there is absolutely no need of a Chiropractic licensing and examining board in Indiana today. The existing lot of Chiropractors in Indiana cannot be improved upon. You are not being persecuted or prosecuted, you are left severely and strictly alone to practice your profession without let or hindrance from any source or any group of any kind. In fact, Indiana today is the best Chiropractic state in the entire country. Chiropractic conditions are as near ideal as it is humanly possible to approach that condition.

But the fact that Indiana is the home of the free, chiropractically speaking, is not the only objection this journal has to the proposed bill. It seems that the bill would require applicants for chiropractic examinations to submit satisfactory proof of the possession of a preliminary education, equal to that of a high school. Perish the thought! As the editor says:

> How many Chiropractors in Indiana today could qualify under that rule? Of all the Chiropractors in Fort Wayne, I do not happen to know of ONE that is a high school graduate. In fact, I believe that the total number in Indiana able to comply with that ruling would be less than two per cent. of all the Chiropractors in the state.

From the point of view of the owner of a chiropractic "college" the sentiments just quoted are eminently logical. It would be entirely unfair to chiropractic schools to insist on matriculants being educated human beings. What educated human being would ever attend a chiropractic school? Of course, from the point of view of public interest—but that's another story.

Insanity in London.—The total number of insane patients in London, reported January 1, was 18,349 (7,423 males and 10,926 females), as compared with 17,916 on Jan. 1, 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Health Board to Use Ex-Service Men.—In the fight against malaria and typhoid in Alabama, the state board of health is planning to use former service men who are entitled to vocational training and desire to learn sanitary engineering work. These men will be placed in charge of the work of drainage, clearing mosquito breeding places, and other activities. Arrangements have been made with the U. S. Veterans' Bureau for training a limited number of ex-service men for this work.

ARKANSAS

Hospital News.—Bids have been opened for the construction of the new St. Edward's Infirmary, Fort Smith.——A hospital will be erected at Conway at a cost of $50,000.—— The St. Bernard Hospital annex, Jonesboro, has been torn down and a brick structure will be erected to replace the frame annex.

CALIFORNIA

Physicians Mobilize to Aid Veterans.—Six thousand physicians of the state, with 300 first-class hospitals at their disposal, mobilized, June 29, to aid the disabled war veterans of California in conjunction with the California State Medical Association and the League for the Conservation of Public Health. These physicians have offered their services to the soldier organizations and welfare bodies, and have recommended a new system of medical treatment for disabled soldiers that will be put into operation at once. It will furnish every wounded veteran in the state with the highest class of medical aid and hospital treatment and will guarantee individual attention and care. It is the plan of the physicians to mobilize those affiliated with the two organizations into groups in every community in the state, first for the care of ambulatory sick. Any wounded soldier will be privileged to call on any physician in his community, affiliated with the mobilization movement, and ask for service. If the individual case cannot be cared for by the physician called on, the case will be transferred to a diagnostic and clearing house hospital. The third division of the system will be devoted to the therapeutic hospitals for the treatment of chronic troubles, such as neuropsychiatric cases and tuberculosis. These hospitals have already been established and will be manned by officers of the U. S. Veterans' Bureau, the California physicians furnishing consulting staffs and assisting in the organization and management of the hospitals. For those patients who cannot be aided by the three means outlined, and who would be classed as hopeless chronic invalids, the final resort will be care for the rest of their lives in comfortable invalid homes for incurable disabled veterans. Dr. A. E. Musgrave, secretary of the state medical association, officially offered the plan for the physicians at a luncheon called by C. J. Sullivan, secretary of the League for the Conservation of Public Health, June 28, in San Francisco. Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, accepted the offer of mobilization of the physicians for himself and President Harding. The offer was also officially accepted by Commander Marx in behalf of the Disabled American Veterans of the World War and by State Commander Quinn of the California division of the American Legion.

COLORADO

Hospital Dedication.—With delegations from many states, the Jewish Consumptives' Relief Society dedicated the new $500,000 building of the sanatorium of the Jewish Consumptives' Relief Society at Edgewater, July 9. This new structure was erected where the central building of the sanatorium was destroyed by fire several years ago. Dr. I. D. Bronfin is superintendent of the institution.

Denver Tuberculosis Society.—Under the auspices of the society, a long desired outdoor school has been established, in Denver. The school board voted for the school, with the understanding that the tuberculosis society should furnish any extraordinary equipment and direct the extracurriculum side of the undertaking. Provision is made for measuring

all children in the grade schools of the city and in arranging for the serving of milk to children who are underweight. The Modern Health Crusade has been extended, and, in September, the school board has agreed to bear half the expense of the crusade in the schools.

CONNECTICUT

Epidemic of Typhoid.—Thirty cases of typhoid fever are reported from New Haven and several from New Britain. The health department has issued a warning against eating raw clams and has offered inoculation to those desiring it.

DISTRICT OF COLUMBIA

Personal.—Dr. Thomas Hugh Scott, U. S. Public Health Service, Washington, who recently announced his retirement from the race for Republican candidate for governor of Oklahoma, has accepted the appointment of medical adviser to the U. S. Veterans' Bureau.

Cancer Committee Appointed.—At a meeting of the District of Columbia Medical Society, July 1, a cancer committee was appointed to act with the local committee of the American Society for the Control of Cancer, which is to conduct an educational campaign in Washington during the summer, ending with "Cancer Week," throughout the country, in November. Dr. Edwin A. Merritt was named chairman, the other members being, Dr. Albert L. Stavely, Dr. Thomas A. Groover, Dr. Edward M. Parker and Health Officer William C. Fowler.

FLORIDA

Medical Meeting Held on Ship.—The Florida Railway Surgeons Association held their third annual meeting on board the S. S. *Cuba*, while en route to Havana for the annual meeting of the Florida Medical Association. The session was held under the presidency of Dr. James H. Pittman, Jacksonville.

GEORGIA

Children's Code Commission.—An act to create the Georgia Children's Code Commission will be presented to the next session of the Georgia legislature, also to provide for the appointment of ten members to the commission who shall be selected by the governor of Georgia. Section 2, reads:

> That it shall be the duty of said Georgia Children's Code commission to study the existing laws of Georgia which in any way affect child life; to study conditions of child welfare in the state, to study the laws of other states, and to consult authorities in this and other states, and to draft for presentation to the succeeding legislature such laws or amendment to the existing laws as will better safeguard the welfare of children in this state.

The commission, whose members will hold their term of office for five years, shall consist of one superior court judge, one member of the house of representatives, one state senator, and a member or representative from each of the following organizations: Federation of Women's Clubs, League of Women Voters, State Council of Social Agencies, state board of health, state board of public welfare, state federation of labor and the state department of education. The members of the commission will receive no salary or remuneration for their services.

ILLINOIS

Free School Clinics.—Drs. Elizabeth B. Ball and Elmer M. Thomas, of the state department of health, held a series of clinics in the Kane County schools, June 12-27. These clinics were held daily and were free to the public.

Chicago

Chicago Physician to Aid Russians.—Dr. George B. Hassin, neuropathologist and professor in the University of Illinois Medical College, left July 1, for New York, and will sail soon for Russia to aid in relief work of the American Medical Aid Society. Dr. Hassin formerly practiced in Siberia.

INDIANA

Hospital News.—Bids have been let for the new Adams County Hospital to be erected at Berne.——The cornerstone of the children's building at the state sanatorium, Parks Lodge, was recently laid.——The new sanatorium at Dillsboro was formally opened, June 24. The new building was erected at a cost of $200,000, and has 120 rooms fitted with modern conveniences.

Riley Hospital for Children.—This week ground will be broken on the first unit of the James Whitcomb Riley Hospital for Children, which is to be erected on a site between the Robert W. Long Hospital and the City Hospital. Arrangements have been made for the purchase of the ground lying between these institutions, so that all of the buildings in the hospital group will be joined, and the intervening space will be available for use as a convalescent park. In the first unit, provision will be made for the care and treatment of one hundred bedridden children, and the first building, when completed and equipped, will represent an expenditure of $500,000. Credit for the initiation of this plan is given to Dr. Lafayette Page, president of the Indianapolis Medical Society, who first called a committee to outline a campaign in 1917. The entire project will cost approximately $2,000,000, the money to be raised through popular subscriptions conducted throughout the state. When completed, the hospital will have facilities for the care and treatment of 350 children. According to the plan, the hospital will be maintained by the state, and children from any county, legally resident of the state, may be admitted for treatment by the judge of any circuit, juvenile or criminal court. In preparing the plans, the committee of architects and physicians visited all of the well known children's hospitals in the country and it is hoped to have the new institution representative of the best type of hospital in its special field.

IOWA

Banquet for Physicians.—The Van Buren County Medical Society recently gave a complimentary banquet, at Des Moines, in honor of Dr. George R. Neff and Dr. Thomas G. McClure, to celebrate their fiftieth year of active practice in Iowa. Dr. Roger N. Cresap was toastmaster.

County Society Anniversary.—The fiftieth anniversary meeting of the Marion County Medical Society was held in Knoxville, June 22. In the afternoon, the physicians and dentists met in scientific session. Dr. John W. Martin, Des Moines, read a paper on "Diagnosis of the Acute Abdomen," and W. L. Harlan, D.D.S., Knoxville, spoke on "Our Relation from the Dental Viewpoint."

Personal.—Dr. Charles S. Chase has resigned as professor of materia medica at the University of Iowa, Iowa City, following thirty years of service. Dr. Chase will retain his connection with the dental college and the school of pharmacy. Dr. O. H. Plant will succeed Dr. Chase in the department of materia medica.——Dr. Lucius F. Hoyt, Jefferson, has just returned from the Methodist Hospital, Des Moines, where he had his left arm amputated just below the shoulder.——Dr. George L. Prentice, Pulaski, has been appointed physician to the Indiana State Soldiers' Home, Layfayette, effective, July 1.

KANSAS

Kansas State Board of Health.—At the annual meeting of the board held in Topeka, June 30, Dr. Joseph E. Hawley, Burr Oak, was elected president, Dr. Jacob J. Entz, Marion, vice president, and Dr. Samuel J. Crumbine, Topeka, was elected secretary of the board.

KENTUCKY

Traveling Trachoma Clinic.—A fully equipped hospital wagon, drawn by four mules, is the conveyance used by Dr. Charles B. Kobert, director of the bureau of trachoma and prevention of blindness of the state board of health, for his six months' trip through western Kentucky. Dr. Kobert, who started on his trip early in June, will give free treatment to all persons suffering from eye diseases. On the trip made in the summer of 1921, Dr. Kobert operated in eastern Kentucky on more than 4,000 patients having trachoma. Congress has made an appropriation of $200,000 for a new trachoma hospital at Pikeville.

LOUISIANA

Personal.—Dr. Henry Ladd Stickney, U. S. Veterans' Hospital, Dwight, Ill., and formerly in charge of the surgical service at Fox Hills Hospital, Staten Island, N. Y., has been appointed superintendent of the Presbyterian Hospital, New Orleans, and reported for duty, July 1.——Dr. Ernest S. Lewis was recently elected president of the Louisiana Antituberculosis Association at the annual meeting in Baton Rouge.

MAINE

Fund for Medical Scholarships.—At the recent meeting of the Maine Medical Association, it was announced that the interest accruing on a bequest made some years ago to the Bowdoin Medical School, now out of existence, will be used

in providing medical scholarships for students from the state of Maine. The president of Bowdoin College is charged with the management of the fund and applications for the scholarships are to be made to him.

Public Health News.—Under the auspices of the Maine Public Health Association, a luncheon conference was held recently in Augusta, under the presidency of Dr. Elmer D. Merrill, Foxcroft, at which more than thirty organizations were represented. The health program for the next three years in Maine was outlined by Dr. Merrill, who stated that this will include an extension of the visiting nurse service throughout the state, the holding of clinics for Maine physicians, the extension of the Modern Health Crusade in the schools, the development of fresh air schools, industrial nursing and special campaigns for the eradication of tuberculosis, cancer and social disease, and for the promotion of dental and child hygiene, baby welfare, and the conservation of vision. Among those who attended the conference were Dr. Clarence F. Kendall, state health commissioner; Dr. Benjamin L. Bryant, secretary of the Maine Medical Association; Dr. A. Thomas, state superintendent of schools, and Dr. Donald B. Armstrong, executive officer of the National Health Council, who was the guest of honor.

MARYLAND

Drive Against Diphtheria Started.—In an effort to make diphtheria a negligible menace to public health in Baltimore city, the health department has sent to Baltimore physicians communications urging general use of toxin-antitoxin, in order to convey immunity to the disease. Under the direction of Dr. C. Hampson Jones, health commissioner, and Dr. John F. Hogan, head of the bureau of communicable diseases, a plan of procedure has been worked out to make diphtheria as light a factor in the health problem as smallpox has become through similar preventive measures. Dr. Jones made it clear that no immediate serious diphtheria situation exists. The reason for the campaign at this time is to secure wide use of the department's plan now so that schoolchildren may obtain immunity before school begins and the active season for the disease returns. While adults can obtain the same treatment, children are the chief concern because of their susceptibility to the disease.

MICHIGAN

Michigan Health Officers Association.—At the annual meeting of this association, the following officers were elected for the ensuing year: president, Dr. Guy L. Kiefer, Detroit; vice president, Dr. David Littlejohn, Ishpeming, and secretary-treasurer, Dr. William J. V. Deacon, Lansing.

Michigan Association of Industrial Physicians and Surgeons.—At the annual meeting of the association in Flint recently, Dr. Guy Kiefer, Detroit, was elected president; Dr. Clarence S. Gorsline, Battle Creek, vice president, and Dr. Grover C. Penberthy, Detroit, secretary-treasurer.

Hospital Merger.—The University Homeopathic Hospital of the University of Michigan Homeopathic Medical School, Ann Arbor, was merged with the University of Michigan Hospital, July 1, following the merging of the Homeopathic Medical School with the University of Michigan Medical School.

Chiropractors Convicted.—The July number of the *Journal of the Michigan State Medical Society* states that four chiropractors, C. L. Tennant, Z. B. Mead, H. F. McKnight and Florin Palmer, were recently convicted in the Detroit Municipal Court of practicing medicine without a license. They were sentenced to pay a $200 fine each, or to serve four months in the house of correction, by Judge Keidan, June 15.

MINNESOTA

Prevention of Blindness.—The governor of Minnesota recently appointed seventeen citizens of the state to serve as a commission to investigate the work being done for the blind by the state, and the activities for preventing blindness. Charles A. Prosser, Dunwoody Institute, is chairman of the executive committee. The commission has already appointed the committee for the prevention of blindness, with Dr. Elmer as chairman.

MISSOURI

Hospital News.—Plans have been completed for the $200,000 addition to St. John's Hospital, Springfield.——Bids have been called for the erection of the $1,000,000 hospital to be built by the government at Jefferson Barracks, St. Louis.——Dr. Ola Putnam, Marceline, has completed plans for the erection of a hospital in Marceline, to be erected at a cost of $25,000.

Medical Society Buys Site.—The St. Louis Medical Society has purchased 150 feet of frontage near the Moolah Temple for the construction of a building to house its activities. The present auditorium has a seating capacity of 250, while the membership of the society is 1,012, and the 21,000 volume library of the society has outgrown its present quarters. The new building will provide an auditorium seating between 500 and 1,000 persons, and adequate room will be provided for the present library needs and for future growth.

NEW JERSEY

State Tuberculosis Clinic.—Through the efforts of the New Jersey Antituberculosis League, an appropriation of $10,000 has been secured for the establishment of a state clinic, to be under the direction of the state sanatorium at Glen Gardener. This will providing clinic facilities for a number of counties.

NEW YORK

Smallpox Epidemic.—It is reported from Niagara Falls that there are forty-one cases of smallpox in the city. All of the cases are mild in character, but orders for vaccination have been issued; and unless the school students are vaccinated they are to be quarantined for three weeks.

Government Hospital to Be in Dutchess County.—A 228-acre farm near Beacon, Dutchess County, is to be the site of one of the three hospitals in this state for the care of disabled veterans. The site has been acquired at a cost of $100,000, and a $1,000,000 hospital will be erected there. It is planned to use this institution as a reclamation hospital.

Public Health Certificates.—Twenty-three physicians who had completed the Albany graduate course in infectious diseases and public health were presented with certificates by Dr. Matthias Nicoll, Jr., deputy commissioner of the state department of health, at the annual dinner of the Eastern New York Public Health Association in Albany, June 22.

Personal.—Dr. Kenneth Gabriel Jennings, Brooklyn, who recently graduated from New York University Medical College, was awarded the Glover C. Arnold Prize for students, awarded for the best surgical examination paper.——Dr. Livingston Farrand, president of Cornell University, Ithaca, was given the degree of doctor of laws recently by Princeton University.——Dr. Edward A. Spitzka, Washington, D. C., has been appointed district medical officer, second district, U. S. Veterans' Bureau. This district embraces the states of New York, New Jersey and Connecticut.

Lead Lined Roentgen-Ray Rooms.—The committee on applications of the bureau of institutional inspection of the health department recently learned that there are numerous laymen operating roentgen-ray machines and making diagnoses, which is contrary to law. The committee ascertained that many persons operating roentgen-ray machines claim that they are not conducting laboratories and for this reason do not need a permit. One of the most important regulations of the new roentgen-ray law concerns the protection of rooms adjoining the laboratories. It is required that the walls and ceiling of the roentgen-ray laboratories be lined with lead. Metal screens and filters for the protection of patients and operators are also required.

State Sanitary Officers' Association.—At the annual conference of the sanitary officers and public health nurses of New York, held in Saratoga Springs, July 27-29, the following officers were elected for the ensuing year: president, Dr. Stanton P. Hull, Grafton; first vice president, Dr. Garys Masillon Lewis, Vernon; second vice president, Dr. Charles D. Kline, Nyack, and third vice president, Dr. Albert C. Johnson, Gloversville; treasurer, Dr. Myron M. Metz, Williamsville, and secretary, Dr. Montgomery E. Leary, Rochester. Dr. Florence L. McKay, director of the new division of maternity, infancy and child hygiene of the state department of health (under the terms of the Davenport-Moore law adopted by the legislature as a substitute for the federal Sheppard-Towner Act), announced that the department is now ready to offer assistance to cities, villages or districts that may desire to undertake local campaigns for the protection of the health of mothers and children.

Rockefeller Institute.—The board of scientific directors of the Rockefeller Institute for Medical Research announces promotions and appointments as follows:

Dr. Wade H. Brown, hitherto an associate member in pathology and bacteriology, has been made a member; Dr. Homer F. Swift, hitherto an associate member in the department of the hospital, has been made

a member; **Dr. Carl A. L. Binger**, hitherto an assistant in the department of the hospital, has been made an associate; **Dr. Albert H. Ebeling**, hitherto an assistant in experimental surgery, has been made an associate; Dr. Laura Florence, hitherto an assistant in the department of animal pathology, has been made an associate; Dr. Albert B. Hastings, hitherto an assistant in the department of the hospital, has been made an associate; Dr. Philip D. McMaster, hitherto an assistant in pathology and bacteriology, has been made an associate; Dr. Louis A. Mikeska, hitherto an assistant in chemistry, has been made an associate; Dr. Ida P. Rolf, hitherto an assistant in chemistry, has been made an associate; Mr. Fred A. Taylor, hitherto an assistant in chemistry, has been made an associate; Dr. Hugh J. Morgan, in the department of the hospital, has been appointed resident physician at the hospital; Dr. David I. Hitchcock, hitherto a fellow in general physiology, has been made an assistant; Mr. James M. Neill, hitherto a fellow in the department of the hospital, has been made an assistant; Mr. Henry S. Simms, hitherto a fellow in chemistry, has been made an assistant

The following new appointments are announced:

Prof. Karl Landsteiner, member in pathology and bacteriology; Dr. Christen Lundsgaard, associate in the department of the hospital; Dr. Thomas M. Rivers, associate in the department of the hospital; Miss Lillian E. Baker, chemical assistant in the division of experimental surgery; Dr. Edmund A. G. Branch, assistant in the department of the hospital; Dr. George R. Brow, assistant in medicine and assistant resident in the hospital; Dr. Harry W. Dahl, assistant in medicine and assistant resident in the hospital; Dr. Douglas R. Drury, assistant in pathology and bacteriology; Dr. Geoffry C. Linder, assistant in medicine and assistant resident in the hospital; Dr. Henry A. Murray, Jr., assistant in the department of the hospital; Mr. Frederic M. Nicholson, assistant in pathology and bacteriology; Miss Ida W. Pritchett, assistant in pathology and bacteriology; Dr. Harold A. Salvesen, assistant in medicine and assistant resident in the hospital; Dr. Harold J. Stewart, assistant in medicine and assistant resident in the hospital; Dr. Chester M. Van Allen, assistant in pathology and bacteriology, and Miss Helena A. M. Tibbetts, fellow in the department of animal pathology.

Dr. Francis Peyton Rous, member in pathology and bacteriology, has been appointed coeditor of the *Journal of Experimental Medicine*. Dr. Harold L. Amoss, hitherto an associate member in pathology and bacteriology, has accepted a position as associate professor of medicine at Johns Hopkins Medical School. Dr. Lloyd D. Felton, hitherto an associate in pathology and bacteriology, has accepted a position as assistant professor in preventive medicine and hygiene at the Harvard Medical School. Dr. Raymond G. Hussey, hitherto an associate in biophysics, has accepted a position as assistant professor in pathology in Cornell University Medical College. Dr. Robert L. Levy, hitherto an associate in the department of the hospital, has accepted a position as associate in medicine at the College of Physicians and Surgeons, Columbia University, and assistant visiting physician at the Presbyterian Hospital. Dr. Edgar Stillman, hitherto an associate in the department of the hospital, has accepted a position as associate in medicine at the College of Physicians and Surgeons, Columbia University, and assistant visiting physician at the Presbyterian Hospital. Dr. Goronwy O. Broun, hitherto an assistant in pathology and bacteriology, has accepted a position as assistant in the Thorndyke Laboratory, Boston, Mass., and assistant resident physician at the Boston City Hospital.

New York City

Seagoers.—Dr. Stuart L. Craig and Dr. Henry Hall Forbes sailed for Europe on the White State Liner *Majestic*, July 8.——Dr. and Mrs. Horatio Pollock sailed for Europe on the *President Wilson*, July 8.——Dr. and Mrs. Charles H. May sailed for Naples on the *Conte Rosso* of the Lloyd Sebaudo Line, July 5.

Banquet for Physicians.—A banquet was tendered Dr. William H. Park and Dr. Abraham Zingher, director and assistant director of the bureau of laboratories of the department of health, respectively, at the Pennsylvania Hotel, June 29. The banquet was given on the occasion of the completion of the Schick diphtheria prevention work in the public schools of Manhattan and the Bronx, in which more than 100,000 children had been tested, and those found to be susceptible injected with toxin-antitoxin, during 1920-1922. The dinner was given by the staff of physicians and nurses who had been engaged in the work.

City-Wide Diphtheria Immunization Campaign.—During the summer months, the health department has in view the Schick testing of all children of preschool age and immunization against diphtheria of those that require it. A supply of circulars in three languages, describing the need and advantages of the procedure, has been printed, and a supply will be sent to every physician who is willing to distribute them to his patients. Physicians who do not care to Schick test children and to administer toxin-antitoxin to such as require it are urged to refer children to the nearest health department station, where the work will be done. Seven doctors and seven nurses, under Dr. Abraham Zingher, have been assigned to this work by the health department.

NORTH CAROLINA

Graduate Course in Internal Medicine.—Under plans developed by the University Extension Division and the medical department of the University of North Carolina, a graduate medical course in internal medicine was given in twelve communities of the state, during the week June 19-24. Centers were established at Charlotte, Salisbury, Ashboro, Lexington, High Point, Greensboro, Durham, Selma, Goldsboro, Wilson, Rocky Mount and Tarboro. Once each week, a lecture and clinic will be given in every center. Dr. F. D. Adams, Harvard University, has charge of the groups in the East and Dr. Frank Amos Chapman, Rush Medical College, Chicago, has charge of the groups in the West.

OHIO

Pure Food and Health Exposition.—With the cooperation of the Babies' Milk Fund Association, the Association for the Welfare of the Blind, the Milk Commission of the Cincinnati Academy of Medicine, the Milk Exchange of the Chamber of Commerce, the Boy and Girl Scouts and the Antituberculosis League, a pure food and health exposition will be held in Cincinnati, July 18-30. Dr. William J. Graf, chairman of the Milk Commission of the Academy of Medicine, will be in charge of the clinic for malnourished children, with a staff of physicians and nurses. The U. S. Pure Food and Drug Laboraory, the state health department, the street cleaning department, the tenement house inspection bureau and the fire department, among others, will take part in the exposition.

PENNSYLVANIA

Addition to State Hospital.—An addition to the State Hospital, Ashland, will be named in honor of Dr. Jonathan C. Biddle, who has served as chief surgeon for many years. The dedicatory exercises were held, July 12. The presentation was made by Mr. E. White of Mount Carmel and the acceptance, on behalf of the state, was made by Hon. William G. Sproul, governor of Pennsylvania.

Statue to Physicians.—The war record committee of the Allegheny County Medical Society met, June 26, in the studio of Giuseppe Moretti, Pittsburgh, to inspect the model for the medical society memorial statue, which will be erected in Schenley Park to commemorate the services of local physicians in the World War. The memorial will be cast in bronze and mounted on a granite pedestal.

Camp for Physicians.—The annual camp for medical directors and division chiefs was opened, June 26, at Mont Alto Sanatorium, by Col. Edward Martin, commissioner of health. The school will be conducted on military lines, the physicians occupying tents placed near the administration building. Lecturers from the foremost universities will be present and give addresses. Motion pictures dealing with public health, playlets illustrating the enforcement of existing health laws and regulations, and instruction showing how adequate milk control, a pure water supply and proper sewerage systems can be obtained by municipalities will be given.

UTAH

State Medical Meeting.—A special session of the Utah State Medical Association was held in Salt Lake City, June 30 and July 1, with an instructive program, including motion pictures. Dr. Joseph Colt Bloodgood, Baltimore; Dr. William Englebach, St. Louis; Dr. Alfred W. Adson, Rochester, Minn., and Dr. Robert H. Millwee, Dallas, Texas, were among the visiting physicians who delivered lectures and held clinics during the session. A trip to Saltair, including bathing and dinner, was made, July 1.

WISCONSIN

Hospital News.—Bids for the construction of the $65,000 addition for St. Mary's Hospital, Rhinelander, were opened June 30, and construction work will be commenced immediately.——A hospital will be erected on the south side, Milwaukee, at a cost of $500,000.——In connection with the observance of Hospital Day in Ashland, two tablets commemorating the dead physicians and nurses who were associated with St. Joseph's Hospital were dedicated.——The new nurses' home, built in connection with St. Joseph's Hospital, Marshfield, was opened for inspection, May 12.

Personal.—Dr. F. M. Shultz has resigned as superintendent of the Milwaukee County Hospital, Wauwatosa, because of ill health.——Dr. Gustave C. Wichman, Rib Lake, has resigned as secretary of the Price-Taylor County Medical Society and has left for California. Dr. Edgar B. Elvis, Medford, has been elected for the unexpired term.——Dr. William A. Rauch has been appointed resident physician at South View Isolation Hospital.——Dr. Herman Gilbert, Madison, is seriously ill.——Dr. F. Eigenberger, Prague,

Czechoslovakia, has arrived in Sheboygan to take up his new duties as pathologist of the Sheboygan Clinic.——Dr. Carroll D. Partridge has resigned as city health officer of Wausau. ——Dr. Harry B. Moe, Blanchardville, was recently elected president of the Lafayette County Medical Society.

WYOMING

Wyoming State Medical Society.—At the twentieth annual meeting of the society held in Sheridan, June 20-22, under the presidency of Dr. Elmer A. Kell, Rawlins, the following officers were elected for the ensuing year: president, Dr. Galen Adis Fox, Cheyenne; counsellor, Dr. Jesse de Leon Lewellen, Powell; secretary, Dr. Edwin Earl Whedon, Sheridan, and treasurer, Dr. Chester Ellis Harris, Basin.

CANADA

Medical Society Reorganized.—The Cumberland County Medical Society of Nova Scotia, which has been inactive since 1913, was recently reorganized, with the following officers: president, Dr. Daniel MacIntosh, Pugwash; vice presidents, Drs. William Rockwell, River Hebert; Moncon J. Wardrope, Springhill, and Murdock D. McKenzie, Parrsboro; secretary-treasurer, Dr. Walter T. Purdy, Amherst. It was furthermore decided that the society should affiliate with the Medical Society of Nova Scotia.

Quebec Medical Association.—The inaugural meeting of the Province of Quebec Medical Association was held in May at Montreal under the presidency of Dr. Simeon E. Grondin, Quebec. The following officers were elected: president, Dr. Simeon E. Grondin, Quebec; vice presidents, Drs. Louis de L. Harwood, William G. Reilly, Charles F. Martin; secretaries, Drs. D. Grant Campbell and Ernest Gariepy, and treasurer, Dr. E. E. Trottier. The president and secretary of each medical society of the province is ex-officio a member of the general committee. There were 200 members in attendance. The distinctive character of these reunions is that they are devoted exclusively to clinical work, with presentation of patients, roentgenograms and specimens. The *Bulletin Médical* for June gives the address of the president, at the meeting held in Laval University before the two days of the clinical demonstrations in four hospitals. Some of the hospitals gave lunch to the guests, and the University of Montreal organized a concert smoker.

GENERAL

Operating Room on Liner.—A modern dispensary and operating room are included among the facilities of the refurnished *Mongolia* of the American Line, which sailed for Hamburg, June 21.

Mobilization of English-Speaking Physicians.—The American Chamber of Commerce at Berlin has recently completed the mobilization of all English-speaking physicians in the city, who will be available in case of sudden illness or emergencies for Americans unable to speak German.

Proposed Bill on Counterfeiting Liquor Prescriptions.—Imprisonment for from one to ten years in a federal prison and a fine of from $1,000 to $10,000 are the penalties imposed by a bill introduced in the senate by Senator Willis of Ohio on those counterfeiting physicians' prescription blanks to secure intoxicating liquor. The title of the proposed act reads as follows: A bill making it unlawful to forge or counterfeit permits or other papers used in connection with the enforcement of the National Prohibition Act and providing penalties for the violation thereof. The bill has been referred to the Senate Committee on the Judiciary.

Donation for Relief Work.—The food packages distributed to Russian physicians have thus far amounted in value to $70,000. The latest allocation of $20,000 for that purpose was made possible through a gift of $35,000 by William Bingham, Jr., an American. Two thousand American Relief Administration food packages have been set aside for the benefit of starving physicians who are aiding the relief administration in its inoculation program. Inoculation against typhoid, two types of paratyphoid, cholera and smallpox is being carried on at every point to which American food is distributed. More than 10,000,000 Russians will be immunized following the completion of this program.

Foreign Students and the Immigration Law.—The executive committee of the American Association of University Professors recently adopted a resolution urging that Congress be petitioned to amend the existing 3 per cent. immigration act by exempting from its provisions all bona fide foreign students, stating that the actual operation of the present law has been attended with such deplorable annoyance to incoming students as to lower the prestige of the United States as a center of education. The resolution further states:

> WHEREAS, The omission to exempt bona fide students desirous of entering American institutions of learning from the operation of the present immigration law is probably due to inadvertence, inasmuch as such students are expressly exempted from the operation of the Chinese exclusion act and the agreement with Japan, and that in case such amendment be not made effective before September 1, the government be petitioned to cause the adoption by the Bureau of Immigration of such administrative rulings as will preclude the possibility of incoming students being sent to Ellis Island or other detention stations.

To Renew Fight on Cancer.—The American Society for the Control of Cancer has received its certificate of incorporation in New York State. Dr. Francis Carter Wood, one of the incorporators, announces that the society's field representative will confine his efforts for some months to Pennsylvania, Iowa and Illinois, which have not yet been fully organized. The society has increased its membership more than 200 per cent. during the last three years, and now has about 2,000 members. A grant of $26,750 has been made to the society by the Commonwealth Fund which made possible the organization of the field work, and Mrs. M. Lasker and family have set aside $50,000 as a permanent endowment fund. Five new names have been added to the board of directors: Melville E. Stone, Dr. Frank Billings, Chicago; Dr. W. W. Keen, Philadelphia; Postmaster General Dr. Hubert Work, and Dr. W. T. Huntington, San Francisco. Dr. Edward Reynolds of Boston was named as chairman of the council.

Hearings on Social Hygiene Board Bill.—Hearings before the House Committee on the Judiciary on the bill introduced by Representative Kahn of California for the transfer to the Department of Justice of the law enforcement functions formerly discharged by the Interdepartmental Social Hygiene Board, with reference to the repression of prostitution in localities where armed forces of the United States are stationed, brought out a practical unanimity of opinion in support of the measure. The recognized fact that the board would cease its activities on June 30 because of the absence of any appropriation for carrying forward its work limited discussion closely to advisability of continuing its law enforcement activities under federal auspices and, if so continued, of vesting them in the Department of Justice. There was unanimity as to the desirability of such activities being continued and substantial agreement as to the expediency of charging them to the Department of Justice rather than to either the Army, the Navy, or the Public Health Service. Among the speakers in support of the measure were Major-Gen. W. M. Ireland, Surgeon-General of the Army, Dr. Hugh S. Cumming, Surgeon-General of the United States Public Health Service, Dr. Valeria H. Parker, executive secretary of the Interdepartmental Social Hygiene Board, and Dr. William F. Snow, secretary of the American Social Hygiene Association.

LATIN AMERICA

Argentine Physicians.—According to a recent article in the *Boletin del Sindicato de Médicos de la República Argentina*, there are at present in that country about 5,000 physicians. Assuming generously a population of 10 million, this would make one physician for each 2,000 inhabitants. Since 1914, 1,508 physicians have graduated from the Buenos Aires Medical School and, since 1921, fifty at Cordoba.

Personal.—Dr. Filiberto Rivero of Havana is visiting clinics in this country.——Dr. Eliud Garcia Treviño and Dr. Aliber Garcia Treviño of Monterey are taking postgraduate courses in Chicago and Philadelphia, respectively.——Dr. Franklin P. Pyles, an American physician, now practicing at Rio de Janeiro, Brazil, is visiting in Chicago. It is claimed that Dr. Pyles is the only English-speaking physician at Rio.

Retirement of Professor Coronel.—The *Anales de la Sociedad Médico-Quirúrgica del Guayas*, of Guayaquil, commenting on the fact that Dr. J. Coronel has resigned his chair of internal medicine in the University of Guayaquil, relates that he has been in practice in Guayaquil for forty-seven years, and on three occasions has been given the official thanks of the national public health service for his various services. He was also awarded a gold medal, "por Mérito Profesional," by the first national medical congress held in Ecuador, which met at Guayaquil in 1915. He recently founded a scholarship in medicine and in law at the University of Guayaquil, and is honorary president of the Sociedad Médico-Quirúrgica del Guayas.

FOREIGN

Royal College of Surgeons of Ireland.—At the annual meeting of the college Sir William I. de C. Wheeler was elected president; Dr. Robert C. B. Maunsell, vice president, and Sir A. H. Ormsby, secretary.

Posthumous Tribute to Keating-Hart.—The French government has published a statment citing the devoted services during the World War of Dr. Keating-Hart, the well known specialist in electrology and radiology, who introduced fulguration, and who died last January at Paris. He continued his work although suffering from the effects of roentgen injury, requiring two operations. The *Journal Officiel* of June 20 announces that his name has been placed on the records as chevalier of the Legion of Honor. It is said of him that he "wedded the long electric spark to the high frequency current."

Dramatization of Pasteur.—A play by M. Sacha Guitry entitled "Pasteur" has recently been produced in London. This play was originally produced in Paris in 1919. The scenes depict Pasteur in his study in 1870; in the Paris Academy of Medicine, where he vigorously combats an attack on his theories; with the boy Joseph Meister, who has been bitten by a dog, and comes for treatment to Pasteur, who sends for a physician to perform the inoculation; at his home in the country, and finally in the crown of his career, at the reception given him by the president of the republic, in the amphitheater of the Sorbonne.

Postponement of Second International Congress on Comparative Pathology.—This often postponed congress, which was finally definitely appointed for Sept. 20, 1922, has been postponed again till next spring. The reason is said to be "difficulty in organization," which means, probably, difficulty in making the congress truly international in scope. The topics appointed for discussion are regeneration of nerves; cancer; deficiency diseases, and diseases with a filtrable virus, but communications on a large number of other subjects have already been announced. The *Paris Médical* of June 24 contains a list of fifty-five.

Society for the Study of Venereal Disease.—The Medical Society for the Study of Venereal Disease was formed in London, June 9. Dr. David Watson, Glasgow, presided at the meeting. It was agreed that the society should not express its corporate views on any subject of administrative or political interest, unless invited to do so by the government, and that, in the event of such invitation, the views expressed should be those of 80 per cent. of the members voting on a referendum. The annual general meeting will be held each year in July. Local divisions of the society will be formed and appoint their own officers. Dr. Robert Forgan agreed to act as secretary until the first regular meeting of the society this month.

Laryngeal Tuberculosis in the Netherlands.—The Netherlands Laryngologic Society has been collecting data on the prevalence of laryngeal tuberculosis, and has found that it is overlooked in an amazingly large percentage of cases. In Leiden, where laryngologists are connected with the consulting dispensaries, the proportion of laryngeal tuberculosis cases was 6 per cent., while it was reported from other towns as only 0.4 per cent. in 15,240 tuberculous examined by nonspecialists. In the sanatoriums that responded, the proportion was reported as 13 per cent. They urge the necessity for specialist examination of the larynx in the preventoriums as a routine practice, regardless of whether the applicants complain of throat symptoms or not.

Personal.—Dr. Edwin Bramwell has been appointed to the Moncrieff-Arnott chair of clinical medicine at the University of Edinburgh, to succeed the late Prof. Francis D. Boyd.——Dr. Hugh Norton has been appointed to the chair of medicine at Anderson College of Medicine, Glasgow, to succeed Dr. John M. Cowan, who resigned recently.——Mr. Thomas H. Openshaw, senior surgeon of the London Hospital, has retired from the active staff after forty-five years' connection with the medical school.——Prof. Hijmans van den Bergh delivered a London University Lecture, June 21, on "The Pathology of Hemoglobin."——Dr. John C. McVail has been awarded the Jenner Medal of the Royal Society of Medicine.——Mr. Evelyn D. Telford, lecturer in practical surgery at the University of Cambridge, England, has been appointed professor of systematic surgery at the University of Manchester to succeed Prof. J. W. Smith, who will vacate the chair in September.

The Graduate Courses in Heliotherapy at Leysin.—THE JOURNAL mentioned on page 1932, June 17, 1922, Rollier's courses which are held in August each year. The next course opens Aug. 15, 1922, and consists of twelve lectures on the various aspects of heliotherapy and roentgenographic control, with practical demonstrations in some of the various sanatoriums in his charge. The course is gratuitous; the charge for room and board is 12 francs a day. The lectures are given by Rollier and six of his assistants. Rollier's own subjects are "The Practical Application of Sunlight in Treatment of Tuberculosis"; "Heliotherapy of So-Called Surgical Tuberculosis"; "Work in the Treatment of Tuberculosis, and the Future of the Convalescents"; "Preventive Heliotherapy," and demonstrations of results in the "Sun School." American physicians are welcomed. Applications are received up to the two weeks before the course opens. Address Dr. Rollier, Leysin-Village, Switzerland. This is the second year of these courses.

Tribute to Marchiafava.—Prof. E. Marchiafava, having reached the age of 75, retired, June 5, from the chair of pathologic anatomy at the University of Rome after forty-eight years of continuous incumbency. A fund has been endowed in his name by contributions from royalty, the city of Rome, the Italian Red Cross, the public health service, the hospitals and banks, and others, to found scholarships at the University of Rome. A number of addresses were made by delegates from various scientific societies and Marchiafava's numerous contributions to science were enumerated, his initial research on malaria and his leadership in the campaign against malaria in Italy, his discovery of the estivo-autumnal parasite, of the cause of melanemia, and his studies in syphilis, tuberculosis, alcoholism, etc. The city of Rome has always regarded him as the one responsible for having freed it from malaria. One of his latest works was the foundation of the Asilo Antimalarico Communale as a home in Rome for the children of families living in the malaria infested marshy districts in the region. A tablet was placed on this building by the community when it was inaugurated last year, paying tribute to Marchiafava as the originator of the project.

American University Union.—George E. McLean, director of the American University Union in London, announces that, since the British universities have recently given renewed attention to advanced and research work and have established the Ph.D., or D.Phil. degree (with American graduate students in mind), the union is now able to advise and introduce American graduate students so that, without loss of time, they may proceed with their work in the British universities and gain admission to the reading room of the British Museum, the public record office and other archives and collections. Among the functions of this office are the receipt and forwarding of mail, keeping a list of boarding houses, and posting notices of public lectures and amusements. Round table conferences are held by British scholars and public men during the season. The Universities' Bureau of the British Empire, the Office National des Universités et Ecoles Françaises and the Danish Students' Bureau are housed in the same building with the American University Union. A common library and reading room is located in the building, and visiting American scholars are advised to register, free of charge, immediately on their arrival in London.

The New Journal, "Social Defense."—The foundation of the Italian Institute of Hygiene by Prof. E Levi of Rome has been already mentioned and the wide scope of its efforts commented on. It aims to compile statistics, coordinate efforts of all kinds of organizations, public and private, and maintain propaganda to promote public and private health, safety, and moral and physical well being. Most of the leading statesmen and clinicians of Italy are on the committee in charge, and pamphlets and films to aid in the work are being published, and the monthly journal, *Difesa Sociale*, has been founded. Professor Levi desires to emphasize in this publication American methods of public health administration and personal hygiene, in addition to its other aims. The first two numbers contain among other articles one by Grassi on "The Present Status of Malaria," and others by Levi on "The Value of the Race and Social Defense" and "The Human Balance-Sheet of the World War." The agitation on behalf of the defense of human beings against avoidable ills is reviewed as it proceeds in various countries. The subscription to the *Difesa Sociale* is 50 liras. The official title of the institute is the Istituto Italiano d'Igiene, Previdenza ed Assistencia Sociale. The address is Via Condotti 8, Rome.

Deaths in Other Countries

Prof. **C. U. Zanetti,** director of the Institute of Pharmacological Chemistry of the University of Parma.——Prof. **Jenö Holzwarth,** who held the chair of radiology in the University

of Budapest.——Prof. **Edmund Weil of Prague, died of typhus** contracted by infection in his laboratory at Lemberg, where he was working in response to an appeal from the Polish government.—— Dr. **Eladio Eguren,** of Rosario, Argentina, member of the municipal council.——Dr. **A. de Barros,** professor of nervous diseases at the medical school of Bello Horizonte, Brazil.——Dr. **N. Coppola,** professor of radiology and electrotherapy at the University of Naples, another victim to the early zeal in the application of the roentgen rays, aged 42. Parts of both hands were amputated at various times and the dermatitis finally became malignant, rebellious to all treatment.—— Dr. **Armand Imbert,** of the medical faculty at Montpellier.

CORRECTION

Seattle Health Officer.—In THE JOURNAL, July 1, it was stated that Dr. Rowe France would succeed Dr. Hiram M. Reed as city health officer. Dr. Reed writes that his term of office will not expire until March, 1924.

Government Services

Organization of Reserve Hospitals of the Army

June 30, Surgeon-General Ireland authorized the organization of a general hospital to be known as General Hospital No. 21, Organized Reserves, at the Washington University School of Medicine, St. Louis. This unit served during the World War as Base Hospital No. 21 with the British Expeditionary Forces. Lieut.-Col. Malvern Bryan Clopton, M. O. R. C., is to command this unit and is now engaged in enrolling the number of reserve officers necessary to fill the positions of the unit called for by tables of organization. This is pursuant to the policy of the Surgeon-General to revive and perpetuate in a general way the units that served in the World War, originally organized by the Red Cross. New units will be given new numbers. During the war, these units served as mobile hospitals and base hospitals, and they will now retain their former numbers as surgical hospitals and general hospitals. They are no longer Red Cross units but pertain to and are part of the military establishment. This is the first new reserve hospital to be authorized by the Surgeon-General to meet the medical needs of the military establishment in case of emergency.

The Surgeon-General of the Army is now required to organize, largely with medical department reserve officers, the evacuation and surgical hospitals that will function under the control of tactical armies and the general hospitals, convalescent hospitals, convalescent camps, station hospitals and the laboratory and medical supply services of the communications zone and home territory. It is the desire of the War Department that these reserve hospitals take on a local distinction which will pertain to the medical college or approved internship hospital that is to foster the unit. The officers of these units are to be selected within the foster institution or in the community, subject, of course, to the laws and regulations as to eligibility for appointment in the Officers' Reserve Corps. The nurses of these units will be taken from the enrolled nurses of the Red Cross nursing service, which constitutes the nursing reserve of the army. It is not intended at this time to recruit the reserve enlisted men nor to issue property, the idea being that there will be a reserve organization of commissioned personnel at the parent institution, which can readily be expanded, in case of necessity, to an army hospital.

LIABILITY FOR SERVICE

Considerable misunderstanding exists as to the liability of reserve officers being called to active duty. The law of June 4, 1920, provides that, except in time of a national emergency expressly declared by Congress, no reserve officer will be employed on active duty for more than fifteen days in any calendar year without his own consent. The War Department does not contemplate calling reserve officers to active duty for training or other purpose for fifteen days each year. For some time to come, the training must be voluntary, owing to the limited appropriations. A reserve officer called to active duty for training purposes during any calendar year, and on whom such duty for business or other good reason would work a hardship, will on request be exempted from such tour of duty. The Surgeon-General recognizes the drawback to membership in the Medical Reserve Corps, if professional and business men who have had war service are inconvenienced by call to compulsory duty in time of peace each year, and does not contemplate any such policy.

REQUIREMENT FOR PROMOTION

Training, however, is a requirement for promotion to field rank and higher grade, if the applicant has held no position commensurate with the position he is required to fill on promotion. In organizing these units, it is to be understood that reserve officers are not required to hold the rank called for in tables of organization, as office and rank are separate and distinct.

Personnel of the Reserve Corps

The Medical Department Reserve Corps now numbers approximately 12,000 officers, and applications are coming in rapidly. A great many former officers have recognized the advisability of joining the reserve corps at this time, owing to the regulations in regard to promotion, and also in view of the provisions of the Pay Act of the army, which gives a reserve officer one-half time credit for all inactive service in the reserve corps when called to active duty, in addition to the base pay of his grade.

Units to Be Organized

The Surgeon-General is now undertaking the organization of the following units, pursuant to instructions of the Secretary of War: three army medical headquarters; one general medical headquarters; two section medical headquarters; one specialist group; thirty-six surgical hospitals (former mobile hospitals); forty-five evacuation hospitals; 165 general hospitals; twenty-four station hospitals (former camp hospitals); three convalescent hospitals; twelve hospital center headquarters; twelve convalescent camps; thirty-seven hospital trains; three air service physical examining units; five general dispensaries; three army medical laboratories; twelve hospital center laboratories; two communications zone medical laboratories; one general medical laboratory; nine medical supply depots; two intermediate medical supply depots, and two base medical supply depots.

Summer Camp for Veterans

Disabled veterans of the World War, Chapter 1, Minneapolis, in cooperation with the U. S. Veterans' Bureau, have taken over the management of the Big Island Summer Camp at Big Island, Minn., for the season. A large radio outfit, additional boats and a swimming instructor and recreational supervisor have been added to the camp, which opened June 19 and will stay open until September 2. There are accommodations for 180 men each two weeks, and the charge for all expenses is $15 for that period.

Reduction in Army Medical Corps

Reduction of the commissioned personnel of the army as a result of the War Department appropriation act, fixing the minimum number at 12,530 and providing for a board to select officers to be discharged or eliminated from the service, will result in the reduction of the medical corps by 145 officers. The present personnel of the corps is 1,128, and there is no doubt that many efficient officers will be involved. The dental corps will suffer a severe blow also, although only seventy-seven officers will be eliminated from this service. Included among these officers will be two or three colonels, from five to seven lieutenant-colonels, from twenty to twenty-two majors and the remainder the captains and lieutenants. None of these officers have sufficient active service to their credit to permit their transfer to the retired list; and, unless retired for physical disability, they will have to be discharged with a year's pay. The medical administrative corps also will have a disastrous blow in this proposed elimination. The corps will lose sixty-six of its 138 officers. All of them were noncommissioned officers of long service and most of them could have retired with more pay than is now possible, since they now have only the choice of being discharged with a year's pay or being demoted to warrant officers and retired as such. Some of them have been in the medical corps of the army from thirty to thirty-five years, and could have retired as enlisted men at $110 a month or after June 30 at $135 a month. Now the best they can hope for is retirement as warrant officers at $75 a month. The

provision of the act stopping all promotions in the army for six months has also served to lower the morale of the Medical Department.

Contract for Jefferson Barracks Hospital Awarded

The contract for supplying the complete mechanical equipment for the U. S. Veterans' Bureau hospital to be erected at Jefferson Barracks, Mo., has been awarded to the S. Faith Company, Philadelphia, for $311,000. The hospital will cost a million dollars. According to Assistant Secretary of the Treasury Clifford, the contract will be given for the construction of the buildings in the near future.

Foreign Letters

PARIS

(From Our Regular Correspondent)

June 16, 1922

Medical Treaty Between France and Italy

On account of their proximity to Italy, the cities of Lyons, Nice and Marseilles admit many Italian patients to their hospitals, and for a similar reason the hospitals of Bordeaux are crowded with Spanish patients. The great number of Spanish women entering the obstetric clinics had already excited curiosity before the war, and an inquiry revealed that many of these women left their country during the last months of pregnancy to be delivered in France, especially in Bordeaux. The Italian colony of Marseilles comprises more than 100,000, and 52 per cent. of the total number of patients treated in its hospitals are of that nationality. This is a heavy financial burden on the city. Thus, a Franco-Italian treaty has been ratified to settle the question. According to the terms of the treaty, the citizens of the two nations who, on account of pregnancy or confinement, or for any other reason, are in need of help and any other medical assistance will be treated in the territory of the other contracting party, as far as the application of social welfare laws are concerned, in the same manner as the citizens of that country, either at home or in hospitals. Money expended for treatment by the country in which the patient resides will not be reimbursed in any case by the country, department, province, commune or public institution to which the patient belongs, as long as an acute disease, certified by the attending physician as such, renders medical assistance necessary. In other cases, including relapses, reimbursements will be made for the period following the first forty-five days of treatment. The country in which the patient lives will continue to bear the cost of medical care without reimbursement in cases concerning: (1) the care at home or in hospitals of the elderly, cripples and incurables having at least fifteen years of constant residence in the country in which they enjoy the benefit of a relief pension or the gratuitous shelter of the home for the aged (this will be reduced to five years when the incapacitation is due to an occupational disease), and (2) all those who are ailing, the insane and other patients having five weeks' residence in said country. As to those who cannot fulfil the residence requirements indicated, the government, after the forty-five days have elapsed, will, as it sees fit and upon advice from the other government, either deport the patient, if his condition permits, or charge the cost of the treatment to the country from which he comes.

The two governments agree each to see that industrial centers having a large number of workmen of the other nationality are equipped with all the necessary means to take care of those who are ill or suffering from accidents, as well as their families. When the cost of treatment given at home, in hospitals or infirmaries is borne by the employer, workers will have the right to take advantage of it without any reimbursement by either country. Benevolent or social welfare associations organized by Italians in France and by the French in Italy, and mixed associations in one or the other country, organized according to the laws of the country, will enjoy the rights and advantages guaranteed to French and Italian associations of the same nature.

Protest by Antipornographic Societies

The Fédération des sociétés antipornographiques recently held its third congress in Lyons and commented on certain formulas printed in the folders pertaining to prophylactic education delivered to young recruits at the time of their medical examination. The federation believes that the best prophylaxis against venereal diseases is a prophylaxis having a character essentially moral. Therefore, it requested the minister of war not to deliver this literature "that seems to make young men believe that debauch is inevitable at their age and that venereal diseases are without importance as long as medicines ward off danger," stating, further, that this procedure is not scientific. The minister of war transmitted the request to the Société de prophylaxie sanitaire et morale, and it was easily demonstrated that in the folders in question moral prophylaxis has not been neglected. For instance, one may read the following advice: "Above all things, be fearful of ruining your health and future in debauch, for heedless sexual intercourse outside of marriage may entail dreadful diseases." Therefore the society emphasized the necessity of continuing this prophylactic education of recruits, which in no way can be considered as immoral.

The Fight Against Cancer

The minister of hygiene, charity and welfare recently appointed a commission to combine the works and efforts pertaining to the etiology, pathogenesis, clinical study, therapeutics and prophylaxis of cancer. The honorary president of the commission is Dr. E. Roux of the Pasteur Institute. The president is Professor Quénu, and the vice presidents are Professors Calmette, Roger, Letulle, Delbet and Hartmann.

The French and American Medical Standpoints

In previous letters, I had the opportunity of showing the striking differences existing between French and American institutions and customs. In the United States, public interest is placed above all, but, unfortunately, in France individualism is the dominant spirit. I recall what Dr. E. Roux of the Pasteur Institute said regarding the slowness of the propagation of hygiene in France: "The Frenchman's individualism does not lend itself to general social movements and concerted and continued efforts. Hygiene requires that an individual submit to discipline for the common welfare."

The same spirit of individualism is also an obstacle to the realization among our professional associations of movements similar to that of the American Medical Association. In a letter published in the last number of the *Gazette des hôpitaux*, Dr. Faxton E. Gardner of New York shows also by a few examples "how often the medical standpoint differs in France and America." For instance, the medical syndicate of the department of the Seine recently adopted the following resolution concerning consultations of pregnant women: "Visiting nurses would only constitute a new type of functionaries that the people would have to pay. France having need of raising its birth rate, it is preferable to encourage these women to fulfil the duties of motherhood. Not only are these functionaries useless, but they could also be harmful to expectant mothers and physicians." It is with reason that Dr. Gardner remarks that not one medical association could be found in the whole United States that would even partly agree with a declaration of that kind, in which women are told rather disdainfully and without circumlocution not to compete with men, and to be satisfied with the duties to which

the stronger sex has always been pleased to confine them, those of motherhood and housekeeper.

Gardner gives another example in which American opinion differs absolutely from French opinion. He refers to the problems concerning bovine tuberculosis which have been recently taken up again in France, following a request by the council of hygiene of the department of the Aisne asking the compulsory application of the tuberculin test to cows whose milk is sold to the public and demanding that all cows with positive reaction be sent to the slaughter houses. This proposition was not accepted by the Academy of Medicine, and it stated that the only way of warding off the transmission of tuberculosis by milk was to boil the milk. Dr. Gardner compares this with the radical legislation of the state of New York, and remarks that once more in France principles of hygiene have been obliged to give way to considerations of economic opportunism.

A New Hospital Society

Physicians and surgeons of the Saint-Antoine Hospital in Paris have just organized a society called the "Amis de l'hôpital," the aim of which is to make wards more attractive and the stay of patients less distressing by decorating the wards with flowers and plants, by giving better food to patients, and by performances similar to those soldiers enjoyed in the war hospitals. Moreover, the society helps families of patients who are very often deprived of resources through the sickness of one of the heads of the family, and takes care of convalescents after they leave the hospital.

NETHERLANDS

(From Our Regular Correspondent)

June 7, 1922.

Hospital Congress

Several members of the board of directors of the largest hospitals in the country gathered in Utrecht under the presidency of Mr. Wortman to discuss the various advantages that might be derived from a general congress in which questions pertaining to hospital organization would be taken up. It is probable, judging from present reports, that the project will mature.

Medical Directory

The "Geneeskundig jaarboekje voor Nederland" for 1922 has just been published. This directory gives a list of hospitals and sanatoriums and all information that may be of interest to the medical profession. The Netherlands today has 3,495 physicians, 381 dentists, 925 midwives and 635 druggists. The number of students in various medical faculties reaches 2,079, including 267 women students.

Annual Meeting of the Netherlands Medical Association

The Nederlandsche Maatschappij tot Bevordering der Geneeskunst will hold its session at Maestricht, July 2-4. On account of the proximity of this city to the Belgian frontier, the organizers will take the participants to Spa during the congress.

The Cancer Institute

Judging from advices received from Bandong (Dutch East India), it seems that the project of constructing a research institute for cancer is making progress. This institute is to be annexed to a large public hospital, where patients will be sheltered. The laboratory will be kept up by the income derived from an endowment of 50,000 florins.

The Fight Against Malaria in Northern Holland

The committee appointed to combat malaria has made some interesting reports, among which is one from Professor Swellengrebel who, during 1920-1921, made researches on infection by anopheles. A careful examination of 5,093 mosquitoes obtained near contaminated houses has shown that the insects were infected, particularly during the months of September and December. During that period, 6 per cent. of the insects are infected, and this serves to prove that the killing of mosquitoes must be done in the fall. On the whole, the fight seems to be successful, as the number of malaria cases dropped from 5,000 in 1918 to 500 in 1921.

Home for Convalescent Railroad Employees

The railway administration intends to purchase the Villandry property of forty-nine acres near Nimeguen, for the erection of a home for convalescent railroad employees. A temporary sanatorium was built in 1921 on the same site, and it sheltered this year 180 homeless men.

PRAGUE

(From Our Regular Correspondent)

June 28, 1922.

Death of Edmund Weil

Prof. Edmund Weil of the German medical faculty in Prague died, June 15, of typhus fever. Science loses in him one of the best students of the problems of immunity. He has become known through his researches on the rôle of white blood cells in the mechanism of immunity, in which he followed the lines indicated by his teacher, Prof. Oskar Bail. He devoted most of his life to the study of typhus fever, and was one of the discoverers of the Weil-Felix reaction, which has become an invaluable means of diagnosis in the fight against typhus fever. During the World War, he was engaged in these studies, and he continued them after the armistice. Having succeeded in cultivating the virus, he began studying in detail the lice and the processes which the virus undergoes in their bodies. He was just about to make the final step in his discoveries and proceed to the immunization of man. He went to Lemberg in order to have fresh typhus material always available. When inoculating an animal intraperitoneally, he sprinkled his eye with an emulsion of the intestines of infected lice which he was injecting. He paid no attention to the accident and, having finished his experiment, returned home. Exactly on the eleventh day after the accident, he developed typhus fever. He died in three days. His death is the more tragic in that he left his life's work unfinished just at the stage when it promised to achieve its final aim in the immunization of man against one of the most deadly diseases. His assistant, Dr. F. Breinl, who has been working with him for several years, is preparing his material for publication and will continue the research as Professor Weil had outlined it.

Congress on Social Medicine

A social medicine congress was organized, June 4-7, in Ruthenia, by Czechoslovak physicians who went to Ruthenia two years ago, when it became a part of the Czechoslovak republic, subsequent to the World War. The territory has been neglected, so that it has become a focus of endemic infectious diseases, such as typhus fever and smallpox. Two years of hard work has brought very fruitful results. The contagious diseases have been stamped out; and now social diseases form the most important problem in the public health campaign. Because the local workers felt that they were not competent to deal with these problems, they called the best of the public health workers to Ruthenia to familiarize them with the local conditions and to seek their advice how to attack the social diseases most efficiently. The congress held its session in five sections, the child welfare and tuberculosis sections being the most important ones. In the child welfare section, the discussion turned on the question as to where

child welfare work should be concentrated. Some of the members felt that it should be concentrated around institutions like hospitals, while others emphasized the importance of preventive child health centers as they have been developed by the American Red Cross. The second group has been able to defend its stand, so that the final resolution, which was accepted almost unanimously, recommends that all child welfare be concentrated in health centers and that institutions be looked on as necessary, but less important adjuncts in the struggle for better health of children. The chief topic for discussion in the tuberculosis section was the fight against tuberculosis among railroad employees, which has been inaugurated on a large scale by the health section of the ministry of railroads. An extensive survey of tuberculosis among this group of employees has been made, resulting in a number of specific recommendations for constructive work against tuberculosis. The congress has been well organized and will certainly be a source of encouragement to the local workers. On the other hand, it has been a rare opportunity for the guests from the other parts of the Czechoslovak Republic to acquaint themselves with the local conditions in Ruthenia, which differ greatly from the conditions prevailing elsewhere in the Czechoslovak Republic.

Tuberculosis Congress

The Czech Scientific Tuberculosis Society will hold a congress in Prague on the scientific problems of tuberculosis in the spring of 1923. This society, which was founded two years ago for promoting the research in tuberculosis, has done a valuable piece of work in promoting interest in the scientific questions connected with the fight against tuberculosis. It holds its sessions regularly every fortnight, and a specific topic is discussed. It has succeeded in acquiring a considerable sum of money for the support of scientific research in tuberculosis. A special research laboratory of the society is being equipped in the bacteriologic institute of Prague University. The initiative of this society has been proved, since there is scarcely a department at the Prague medical faculty in which there is not someone at work on a special topic which he is preparing for the tuberculosis congress in 1923.

BERLIN

(From Our Regular Correspondent)

June 17, 1922.

Adulteration of Pharmaceuticals

At a time like this, when deception and graft are found on every hand, it is not surprising to note that pharmaceuticals are adulterated. Repeatedly, the discovery has been made here that, in place of cocain, arsphenamin, santonin and other drugs, preparations of inferior value are sold. Instead of arsphenamin, gypsum colored with brickdust is furnished in ampules, and as a substitute for santonin a buyer may receive magnesium sulphate. Recently, acetylsalicylic acid was replaced by sodium bicarbonate. These tablets presented the same outward appearance as the genuine tablets, even as to the style of type used on the wrapper and the trademark of the manufacturer; also the glass tubes were of the same size; the outer capsule, with the name of the manufacturer stamped on it, and the label were close imitations of the original. As certain quantities of these adulterated products have been sent to foreign countries, this word of warning may not be superfluous.

"Diabetes Bacilli"

As the readers of THE JOURNAL doubtless know, the English bacteriologists Renshaw and Fairbrother recently *(British Medical Journal,* April 29, 1922) set up the hypothesis that the bacillus which was found by them in the stools of nine diabetics and which seemingly possessed the capacity to hydrolyze starch (named by them *Bacillus amyloclasticus-intestinalis)* may have an etiologic significance in diabetes—suggesting that diabetes is due to an intestinal infection. Von Noorden makes the following critical comment:

1. Withdrawal or restriction of carbohydrates, the essential nutrients for the growth of *Amylobacter*, has played, for many years, an important part in the treatment of diabetes. It has been repeatedly observed that restriction can be carried only to a certain degree and only in certain cases can it be pushed very far, since otherwise the body becomes flooded with acetone bodies. This clinical observation is thus sharply opposed to the theoretical conclusions reached by Renshaw and Fairbrother.

2. Of the various foodstuffs containing carbohydrate in large quantities, the most marked sugar-forming effect, but, at the same time one strongly opposing the formation of acetone, is found in sugar and finely milled flours, the carbohydrates of which are early absorbed into the blood from the small intestine; whereas the large intestine, which is the abode of intestinal bacteria, receives only a very insignificant remnant, from which no considerable quantities of acetone bodies can be formed. On the other hand, a less marked sugar-forming effect with a greater tendency to acetone formation is observed in foods which contain carbohydrates in a not easily absorbable form, for which reason a considerable portion of them reach the large intestine, the seat of bacterial activity. To this class belong graham bread and many of the vegetables. In moderately severe cases of diabetes, we can keep down the acetone by generous quantities of graham bread, although such bread offers rich nutrient material for *Amylobacter*.

3. The digestion and assimilation of starch proceeds so rapidly that, from the average amount of starch (about 80 gm.) which diabetics consume daily, with excretion of acetone, only a few grams enter the region of intestinal bacteria. Since, under especially favorable conditions, for 100 gm. of starch only 9 gm. of acetone is developed, it is evident that only a few decigrams can be formed for *Amylobacter* from the remnants. However, in more severe types of diabetes, the body excretes from 50 to 80 gm., or even 100 gm. of acetone bodies, daily, and the quantity commonly increases in proportion as the supply of starch is reduced. The theory of the British investigators thus encounters unsolvable quantitative difficulties.

4. In the presence of diarrhea, when starch, etc., reaches the region of intestinal bacterial flora much more quickly than usual, the excretion by the diabetic of sugar and more particularly acetone will generally be lessened; whereas, according to the theory of the British writers, one would rather expect an increase. On the other hand, it seems very probable that in the acetone excretion of infants with diarrhea (without simultaneous excretion of sugar: no diabetes) *Amylobacter* may possibly play a very important part. If this should be confirmed, our English colleagues have made a very important discovery in the field of pediatrics.

5. The prospects of getting at intestinal bacteria by means of disinfectants or by the introduction of antagonistic bacteria are very slight. All the experiments conducted thus far, some of which were carried out on a large scale in intestinal infections of various kinds, have failed of their purpose. Even the Metchnikoff method, which seemed to have the best theoretical foundation (lactobacillin), accomplished only a very small part of what it was expected to accomplish, ten or twenty years ago. Only the withdrawal of nutrients that favor the growth of definite groups of bacteria has proved of value, and this is the basis of the modern therapy of intestinal catarrh. But the method is no

applicable to *Amylobacter*, since we must bear in mind that the withdrawal of carbohydrates favors the formation of acetone in diabetics. As regards the statement of the writers that by mixing other bacteria with *Amylobacter* the latter's acetone-forming power is lessened, that is only what would naturally be expected. In the large intestine, there are not only ferments (diastase) but also other bacteria that attack the starch-containing material and its cleavage products, leaving for *Amylobacter* only a portion of the food that reaches that region.

6. That infections may cause diabetes is generally assumed. The causation is ascribed to a toxic injury of the pancreas, with resulting impairment of its secretion. Similar toxic injuries of other organs are associated with infectious diseases; for example, the kidneys, the heart muscle and the nerves.

It becomes evident from the foregoing that von Noorden takes a very skeptical attitude toward the hypothesis of the English investigators.

Marriages

GEORGE MARSHALL LYON, Huntington, W. Va., to Miss Virginia Berkley Sutherland of Washington, D. C., at Elkins, W. Va., June 24.

FRANCIS D. ELLIS, formerly of Brooklyn, to Miss Carolyn A. Welles of Hartford, Conn., at Mahableshwur, India, April 5.

JOHN GILBERT NULL, San Carlos, Calif., to Mrs. Jeannette Irene Glackin of San Francisco, at San Jose, June 21.

ORA C. STRICKLER, New Ulm, Minn., to Miss Carrie E. Purdy of Grand Rapids, Mich., in Chicago, May 6.

GEORGE BEATTY BURWELL, Renfrew, Ont., Canada, to Miss De Vee Oliphant of Cedar Rapids, Iowa, June 15.

JOHN EDWARD TYLER, Worcester, Mass., to Miss Frances Mary Slade of Roland Park, Baltimore, June 28.

ROBERT FRITZ TOBIAS JAENICHEN, Detroit, to Miss Dorothy Thompson Longstreet of Saginaw, Mich., June 22.

ROBERT MARTIN GRIER, Pleasantville, N. J., to Miss Virginia McCleavy of Harrington, Del., June 24.

ALBERT FRANKLIN SHRIER, Reisterstown, Md., to Miss Estelle R. Weiss, at Elizabeth, N. J., June 7.

WENDELL LANPHEAR DOWNING, LeMars, Iowa, to Miss Marion Klenk of Easton, Minn., June 22.

FRANK L. KRAMPERT, Omaha, to Miss Grace Drimnen of Columbus, Neb., in Omaha, May 30.

HOSIE FRANK MAGEE, Jackson, Miss., to Miss Jim Haley of Crystal Springs, Miss., June 28.

ROWLAND FOREMAN WEBB to Miss Lois Mary Lillie, both of Grand Rapids, Mich., recently.

FELIX REVIELLE BRUNOT, New Orleans, to Miss Mary Bankerd Wagner of Pittsburgh, June 9.

HARLEY N. GOULD, Wake Forest, N. C., to Miss Mary Raymond of New Orleans, June 9.

CHARLES MICHAEL COLLINS to Mrs. Mattie M. Coady, both of Providence, R. I., June 21.

KARL DOEGE, Marshfield, Wis., to Miss Helen Ramsey of Rock Rapids, Iowa, June 11.

WILLIAM ELBERT FARIS to Miss Martha Ann Law, both of Birmingham, Ala., June 30.

ALBERT S. HOHER to Miss Katherine Augusta Rader, both of Baltimore, June 29.

OTTO JOHN SEIFERT to Mrs. Hedwig Henle, both of New Ulm, Minn., May 15.

CLARENCE E. RICE, Odell, Neb., to Miss Irene Dredla, Crete, Neb., May 6.

ARTHUR MAX KOHN, Detroit, to Miss Rose Simon of Chicago, June 25.

WALTER J. CONNELL to Miss Lucy Riggs, both of Dubuque, Iowa, June 22.

HERMAN BICK to Miss Belle Bogen, both of New York, June 4.

Deaths

Ernest Keys Cullen ● Detroit; University of Toronto Faculty of Medicine, Toronto, Canada, 1903; professor of gynecology, Detroit College of Medicine and Surgery; died, July 5, from uncontrollable hemorrhage from ruptured varicose veins of the esophagus. Dr. Cullen, a brother of Dr. Thomas Cullen, Baltimore, was born in Belleville, Ontario, May 14, 1878. Following his graduation he took three years' graduate work at Johns Hopkins Hospital, Baltimore, and served his internship at the Toronto General Hospital. He later entered Dr. Howard A. Kelly's service at the Johns Hopkins Hospital and afterward became resident gynecologist. About 1912 he moved to Detroit and served as gynecologist to the City of Detroit Receiving Hospital, the Harper Hospital and St. Mary's Hospital. Dr. Cullen served during the World War with the Harper Hospital Unit, and was honorably discharged in 1919 with the rank of major. He was a member of the Detroit Surgical Society and of the American Association of Pathologists and Bacteriologists.

John Stanton Blackmar ✱ Norwich, Conn.; Columbia University College of Physicians and Surgeons, New York, 1898; veteran of the Spanish-American War; captain in the M. C., U. S. Army, during the World War; president and formerly secretary of the New London County Medical Association; member of the city council; on the staff of the William W. Backus Hospital; died, June 24, aged 47, from angina pectoris.

George E. Hyde ✱ Provo, Utah; University of California Medical School, San Francisco, 1895; superintendent of the State Mental Hospital at Provo since 1916; formerly president of the state board of health of Idaho for two years, and superintendent of the Idaho State Mental Hospital; died, June 22, aged 57, at a hospital in Salt Lake City, following an appendectomy.

Howell Shoener Zulick, Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; clinical professor of dermatology at the University of Pennsylvania; lecturer on dermatology at Temple University; was found dead in his chair, June 23, aged 39, from heart disease.

Frederick Augustus Rand, Parrsboro, N. S.; Medical Department of the University of the City of New York, 1885; for thirty years county coroner and for six years chief magistrate of Parrsboro; died, April 25, aged 66, from heart disease, following overexertion.

Charles William Cullen, Cincinnati; Medical College of Ohio, Cincinnati, 1900; served in the M. C., U. S. Army; also a civil engineer; superintendent of the Ohio Budget Commission; member of the board of education; died recently in Denver, aged 46.

Charles Washington Bray ✱ Portland, Me.; College of Physicians and Surgeons in the City of New York, 1874; formerly on the staffs of the Maine Eye and Ear Infirmary, and the St. Barnabas Hospital; died, June 22, aged 71, from heart disease.

Charles Douglas ✱ Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Can., 1864; emeritus professor of pediatrics at the Detroit College of Medicine and Surgery; consulting physician at the Harper Hospital; died, May 26, aged 78.

Edward Ager Diggins, Antioch, Calif.; Cooper Medical College, San Francisco, 1897; served for several years as surgeon in the M. C., U. S. Army, and also during the world War; died, June 30, aged 46, at the Weimer Hospital at Martinez, Calif.

Sidney Worth, San Francisco; New York Homeopathic Medical College, New York, 1874; formerly professor of pediatrics at Hahnemann Medical College of the Pacific, San Francisco; died, May 20, aged 76, from heart disease.

Robert Lloyd Williams ✱ Statesan, Wis.; Jefferson Medical College, Philadelphia, 1906; superintendent of the Wisconsin State Tuberculosis Sanatorium; aged 41, was killed, June 25, at Cleveland, Ohio, when struck by a street car.

Mary Virginia McCune Rossa ● Martinsburg, W. Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; proprietor and superintendent of the Shenandoah Valley Sanatorium; died suddenly, May 15, aged 63.

Irving I. Sternman, Richmond Hill, N. Y.; University and Bellevue Hospital Medical College, New York, 1921; on the

✱ Indicates "Fellow" of the American Medical Association.

staff of the St. John's Hospital, Long Island City; died, June 28, aged 27, from bronchopneumonia.

Harvey Hinchman Pettry ✱ Colcord, W. Va.; Maryland Medical College, Baltimore, 1905; died, June 20, aged 53, from gunshot wounds received when a pistol carried in his holster accidently exploded.

Thomas Caruth Dunn, Fountain Run, Ky.; Medical Department, University of Tennessee, Nashville, 1889; member of the Kentucky State Medical Association; died, June 8, aged 62, from arteriosclerosis.

George Wright, Glasgow, Scotland; Trinity Medical College, Toronto, Ont., Can., 1890; resident of Michigan, U. S. A., from 1898 to 1915; died, June 20, aged 65, from heart disease following influenza.

William Jacob Haymaker, Export, Pa.; Jefferson Medical College, Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; died, June 21, aged 57, following a long illness.

Edward Payson Stimson ✱ Tiverton, R. I.; Dartmouth Medical School, Hanover, N. H., 1874; for several years medical examiner at Tiverton; died, July 5, aged 73, from heart disease.

Charles H. Ludwig, Chicago; Hahnemann Medical College and Hospital of Chicago, 1875; practitioner in Chicago for more than forty years; died, July 7, aged 71, from carcinoma of the rectum.

John Smicle Turner, Monticello, Ga.; McGill University Faculty of Medicine, Montreal, Canada, 1910; died, June 6, aged 42, at Washington Park, Ga., from chronic nephritis.

William Edmund St. Michael Raw, Hamilton, Ont., Can.; M.R.C.S., England, L.R.C.P., London, and L.S.A., London, 1885; died, April 15, aged 62, following a long illness.

Samuel Budd Page Knox, Santa Barbara, Calif.; University of Pennsylvania Medical Department, Philadelphia, 1866; died suddenly, June 30, aged 84, from heart disease.

James Webster Shannon, San Diego, Calif.; Victoria University, Manchester, England, 1890; L.R.C.P., London, and M.R.C.S., England, 1890; died, June 19, aged 55.

Calvin A. Bonner, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1890; for several years city health officer; died, June 23, aged 64, following a long illness.

Robert Ormsby, Manhattan, N. Y.; Medical Department of the University of the City of New York, 1876; died, June 9, at Flushing, aged 67, from heart disease.

James H. Proudlock, Danbury, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; died, May 24, aged 59, at the St. Luke's Hospital, Duluth, Minn.

David Winslow Hunt, Glendale, Calif.; University of Michigan Medical School, Ann Arbor, 1871; died, June 25, aged 76, from cerebral hemorrhage.

George Sheldon Bingham, Hamilton, Ont.; Victor University Medical Department, Toronto, Ont., Can., 1881; died, April 6, aged 64.

Paul J. Faber ✱ Chicago; Chicago Medical College, 1890; died, July 7, aged 55, at the Augustana Hospital, from carcinoma of the liver.

William Riley Jamison, Sacramento, Calif.; California Medical College, San Francisco, 1895; died, June 30, at Watsonville, aged 64.

James Harper, Gimlet, Ky.; Barnes Medical College, St. Louis, 1899; formerly health officer of Elliott County; died, April 1, aged 57.

Harry Lee Courtright ✱ Keokuk, Iowa; Keokuk Medical College, 1901; died, June 24, aged 45, following an operation.

William H. Raasch ✱ Chicago; Chicago College of Medicine and Surgery, 1913; died, July 10, aged 35, from nephritis.

Ralph H. Williams, Bosworth, Mo.; Missouri Medical College, St. Louis, 1881; died, June 21, aged 63, from peritonitis.

Edward Graeff West ✱ Boston; Medical School of Harvard University, Boston, 1880; died, June 10, aged 66.

George W. Sellers, Mount Moriah, Mo.; American Medical College, St. Louis, 1878; died, June 18, aged 80.

John M. Crenshaw, Liberty, S. C.; Atlanta Medical College, Atlanta, Ga., 1882; died, June 2, aged 65.

Charles Newton, Floral, Ark. (licensed, Arkansas, 1903); died recently, aged 77, from cystitis.

Gustav Jack, Waco, Texas; University of Zurich, Switzerland, 1884; died, June 14, aged 59.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Madam LeRoy's Regulative Pills.—The LeRoy Chemical Co., Baltimore, shipped in January, 1919, a quantity of "Madam LeRoy's Regulative Pills" which were misbranded. The federal chemists reported that analysis showed the pills to contain aloes, with traces of pennyroyal and tansy. The product was labeled in part:

"A Menstrual Regulative . . . an excellent formula for regulating the menstrual flow. We have been selling them for many years with the most satisfactory results . . . for . . . suppressed or scanty menses, . . . will assist in restoring a normal condition."

These and similar claims were declared false and fraudulent and, in May, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9854; issued Feb. 21, 1922.*]

Hooker's Cough and Croup Syrup.—Charles B. Kingsley, Northampton, Mass., shipped in August, 1919, a quantity of "Dr. Hooker's Cough and Croup Syrup," which was misbranded. The federal chemists reported that analysis showed the stuff to contain oil of anise, oil of wintergreen, alcohol, sugar, water, bloodroot and a balsam, probably tolu. The preparation was falsely and fraudulently represented as an effective remedy for croup, catarrh, whooping cough, asthma, incipient consumption, and all diseases of the blood and lungs. In June, 1921, Charles B. Kingsley entered a plea of *nolo contendere* and the court ordered the information placed on file. The government report does not explain why this individual was let off without even a fine.—[*Notice of Judgment No. 9851; issued Feb. 21, 1922.*]

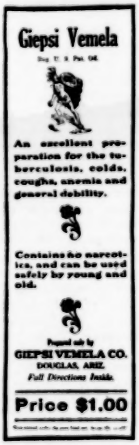
Naptholene.—In May, 1920, Dr. E. E. Sonnanstine, La Junta, Colo., shipped from Colorado to Missouri a quantity of Naptholene which was misbranded. The Bureau of Chemistry reported that analysis showed the stuff to contain gasoline, kerosene and a small quantity of resin of red pepper. It was sold under the claim that it was a cure for rheumatism, diphtheria, diabetes, appendicitis, toothache, all skin diseases, piles, Bright's disease and a number of other conditions. These claims were declared false and fraudulent and in February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9856; issued Feb. 21, 1922.*]

Homosan.—The International Toilet Co., Brooklyn, N. Y., shipped during 1920 and 1921 from New York to Porto Rico a quantity of "Homosan" which was misbranded. The federal chemists reported that analysis showed it to consist of tablets containing a trace of strychnin. The preparation was sold as a remedy for "weakness of the testicles, atrophy of the prostate gland, spermatorrhea and impotence," and was recommended as an aphrodisiac. These claims were declared false and fraudulent and, in May and August, respectively, 1921, judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9875; issued Feb. 21, 1922.*]

Haskin's Cough Medicine.—The Haskin Medicine Co, Binghamton, N. Y., shipped in January, 1921, a quantity of "Haskin's Cough Medicine" which was misbranded. Analysis by

the Bureau of Chemistry showed that this preparation was a dark brown liquid carrying tar, chloroform, sugar and water. It was falsely and fraudulently recommended as a cure for all diseases of the throat and lungs, consumption, pneumonia, croup, asthma, etc. In June, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9877; issued Feb. 21, 1922.*]

Apollo Brand Sexual Pills.—The S. Pfeiffer Mfg. Co., St. Louis, Mo., shipped in November, 1920, a quantity of "Apollo Brand Sexual Pills" which were misbranded. The Bureau of Chemistry reported that analysis showed these pills to contain extracts of nux vomica and damiana and phosphorus. The aphrodisiac effect claimed by inference for this product in the name was declared by the government to be false and fraudulent and in August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9894; issued Feb. 21, 1922.*]


Giepsi Vemela
An excellent preparation for the tuberculosis, colds, coughs, anemia and general debility.
Contains no narcotics, and can be used safely by young and old.
Prepared only by
GIEPSI VEMELA CO.
DOUGLAS, ARIZ.
Full Directions Inside
Price $1.00

Giepsi Vemela.—The Giepsi Vemela Co., Douglas Ariz., shipped a quantity of this product in February, 1921, which the federal authorities charge was misbranded. The Bureau of Chemistry reported that analysis showed the preparation to consist of vegetable extractives, sugar and water. The stuff was falsely and fraudulently recommended as an effective treatment and cure for tuberculosis, sore throat, weak stomach, tumors, ulcers, buboes and various other conditions. In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10036; issued May, 1922.*]

McMullin's Tonic.—In the early part of 1921 the Tilden McMullin Co., Sedalia, Mo., shipped from Missouri to Colorado a quantity of "McMullin's Tonic" which was misbranded. The Bureau of Chemistry reported that analysis showed this stuff to contain alcohol, glycerin, iodids, carbolic acid and water. The stuff was falsely and fraudulently labeled as a relief for consumption, asthma, catarrh, bronchitis, etc. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9886; issued Feb. 21, 1922.*]

Dupree's French Specific Pills.—The United Drug Exchange, New York City, shipped in October, 1920, and May, 1921, a quantity of "Prof. Dupree's French Specific Pills" which were misbranded. The chemists of the Bureau of Chemistry reported that analysis showed the product to contain aloes, iron sulphate, and a trace of alkaloids with indications of cotton-root bark and tansy. The stuff was sold "For use in the suppression of irregularities of the menses" and false and fraudulent claims regarding the therapeutic effects were made for it. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9888; issued Feb. 21, 1922.*]

Shores Lung Balsam and Shores Mountain Oil Liniment.—In March, 1920, the Shores-Mueller Co., Cedar Rapids, Iowa, shipped a quantity of "Shores Lung Balsam" and "Shores Mountain Oil Liniment," both of which were misbranded. The federal chemists reported that the "Lung Balsam" contained pine tar, ammonium chlorid, a salicylate, chloroform, glycerin, sugar and water. It was falsely and fraudulently represented as an effective treatment and cure for sore lungs, bronchitis, whooping cough, croup and throat trouble.

The "Mountain Oil Liniment," according to the federal chemists, contained cajeput, wintergreen, sassafras, cedar oils, camphor, ammonia, borax, washing soda, plant extractives, capsicum oleoresin, alcohol and water. This was falsely and fraudulently represented as an effective treatment and cure for colds, cramps, colic, cholera morbus, diarrhea, rheumatism, indigestion, sore throat, mumps and other things. In addition to these false and fraudulent claims the product was further misbranded in that the amount of alcohol contained therein was not correctly stated. In October, 1921, a plea of guilty was entered on behalf of the Shores-Mueller Co. and the court imposed a fine of $60 and costs.—[*Notice of Judgment No. 10044; issued May, 1922.*]

Montauk Star Brand Pills.—A quantity of "Montauk Star Brand Pills," offered for sale in the District of Columbia in July, 1921, was charged by the federal officials with being misbranded. The Bureau of Chemistry reported that analysis showed the pills to contain iron sulphate, aloes, and a trace of strychnin. The preparation was sold under the claim that it was "For use in the suppression of irregularities of the menses." These and similar claims were declared false and fraudulent and, in October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9908; issued March 6, 1922.*]

Princess Brand Pennyroyal, Tansy and Cotton Root Bark Compound Pills.—These pills were being offered for sale in Washington, D. C., in July, 1921. The government chemists reported that analysis showed the pills to contain aloes. They were falsely and fraudulently labeled as "A Safe, Reliable, Powerful, Yet Harmless, Emmenagogue." In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9919; issued March 6, 1922.*]

Shores Sarsaparilla.—In October, 1920, the Shores-Mueller Co., Cedar Rapids, Iowa, shipped a quantity of this product, which was misbranded. The federal chemists reported that Shores Sarsaparilla contained extracts of plant drugs, including a laxative, a salicylate, a small amount of ammonium chlorid, a trace of alcohol, glycerin and water. The stuff was falsely and fraudulently represented as an effective cure for catarrh, rheumatism, boils, blood and skin diseases, bad breath, eczema, general debility, female weakness, etc. In October, 1921, a plea of guilty was entered by the Shores-Mueller Co. and the concern was fined $20 and costs.—[*Notice of Judgment No. 10048; issued May, 1922.*]

Correspondence

A DEFENSE OF GROUP MEDICINE

To the Editor:—The communication by Dr. Wilson on the disadvantages and limitations of clinic or group medicine in THE JOURNAL, June 24, provoked in me a decided reaction. Much of the criticism he offered is true, but, as he said, can be applied with equal justice to the consultant and to the general practitioner. Other criticisms of group practice need only to be recognized to be obviated. A properly organized and managed modern clinic in a small city is far from being a "soulless corporation." Its members are conscientious physicians with as definite a clientele as the so-called family physician. What is the evidence that the average consultant or even general practitioner takes into account the individual's "psychologic reaction" any more definitely than does a member of a small group in a small city?

The question whether specialists in the large cities and medical centers should unite into groups is a debatable one. In cities ranging from 5,000 to 50,000 inhabitants, however—and there are 1,275 of these in the United States—the situa-

tion is entirely different. In these smaller communities it is almost impossible for one to confine oneself strictly to a specialty unless one is in a group or in some sort of partnership. General practitioners are everywhere clipping turbinates, removing tonsils, doing cesarean sections and performing every minor and major operation they think they can get away with. With the optometrists competing strongly for the refraction work, it is rare to find even an eye, ear, nose and throat specialist in the smaller cities who is not also engaging in general practice. It is manifestly impossible for an internist, a urologist, a pediatrician, a neurologist, a radiologist or even a general surgeon to make a living in most of these cities. Patients with conditions requiring expert attention are thus often either improperly treated, or are forced to make long, expensive journeys to specialists in distant cities.

On the other hand, it is possible, and has been shown to be feasible for a group of physicians to unite and confine themselves strictly to their specialties, and bring scientific medicine to these smaller communities. A well-organized clinic has a complete library and a well-equipped laboratory with roentgen-ray and other diagnostic apparatus which it is almost impossible for one man to own or operate. Scientific clinical and research work can be done at such a clinic as well as at the leading medical centers. If even 1,000 of these cities should contain such a clinic, think of the rapid advance that would be made in the practical application of scientific medicine.

The concept of the health center elaborated by Billings and others is in many respects ideal, but, like all ideals which require public cooperation, is difficult of realization. In addition, politics is likely to interfere at the most inopportune time, and in a day destroy or vitiate years of labor. Furthermore, no room is made in this régime for the true specialist. In fact, the temptation for the general practitioner to attempt everything would be even greater than at present. It is generally recognized that municipal, county and private hospitals with the so-called open door policy of admitting all licensed practitioners, regular or irregular, to their wards and operating rooms have promoted the growth of the present day "specialist in everything." The case of the community hospital recently cited in THE JOURNAL in which all of the practicing physicians in the community were on the staff, and a rotating service was maintained whereby each physician was in charge of the surgical ward for a certain period every two years, and again was in charge of the medical ward for a like period, illustrates the pernicious possibilities of this plan.

I would ask this question: Given a community that can support five physicians, is it better for each to attempt to do everything, or for the five to combine and each confine himself to the specialty for which he is best fitted?

JOHN W. VISHER, M.D., Twin Falls, Idaho.

THE EDITIO MAGNA OF VESALIUS

To the Editor:—Recently, I had the fortune to secure a copy of "Editio Magna" of Vesalius, the 1543, Operinus, Basle Edition. I believe the copy, which I have, is the finest in this country. It belonged to Lancisi, and was given with his other books to the Library of The Holy Ghost in Rome in 1714. After that time the library was called, "The Biblioteca Lancisiana," and the books were dispersed at the time of the Napoleonic Invasion of Italy. I am anxious to communicate with others, who own copies of this edition, in order that a list and location of these books may be recorded.

HORACE MANCHESTER BROWN, M.D., Milwaukee.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPINAL AND CISTERN PUNCTURE IN DIAGNOSIS AND TREATMENT OF INTRACRANIAL HEMORRHAGE

To the Editor:—Please describe the fundamental principles of the value of spinal and cistern puncture in the diagnosis and therapeutics of intracranial hemorrhage, mentioned in an abstract (THE JOURNAL, May 20, p. 1570).

J. G. BAJANDAS, M.D., Coamo, P. R.

ANSWER.—Spinal puncture has long been used in both the diagnosis and treatment of meningeal hemorrhage. Obviously, no blood will find its way into the cerebrospinal fluid unless the hemorrhage is primarily meningeal or ventricular, or if it ruptures into the subarachnoid space or a ventricle. If the hemorrhage is recent, red corpuscles will be found; if old, the fluid will be more or less straw-colored on account of the hemoglobin or its derivatives dissolved in it. With an intracranial hemorrhage, blood will be found earlier and in greater quantity by cistern puncture than by lumbar puncture. The therapeutic value of lumbar puncture in intracranial hemorrhage, especially of the traumatic variety, has been amply testified to. Thus a French army surgeon, F. Albert (*Lyon chirurgical* **15**:328 [March-April] 1918) said: "Lumbar puncture should have a place of honor in all craniocerebral surgical establishments. In all doubtful cases of skull fracture or meningeal hemorrhage it settles the diagnosis. All cases of concussion and cerebral hypertension are accompanied by hypersecretion of cerebrospinal fluid. Lumbar puncture is the treatment, counteracting at one time both cause and effect. It is the only efficient treatment of basal fracture." If this observer had been familiar with cistern puncture, even the French language probably would hardly have sufficed to express his enthusiasm.

Cistern puncture is rather new, and so far has principally been used in cases of spinal subarachnoid block and for injections of arsphenamized serum in paresis. The case reported by Ruggles and Wyatt (*Boston M. & S. J.* **186**:572 [April 27] 1922), to which our correspondent refers, demonstrates that bloody fluid may be readily obtained by cistern puncture in a case of cerebral hemorrhage when for some reason or other lumbar puncture gives a "dry tap." That no block existed in this case was shown by the fact that salt solution injected through the spinal puncture needle caused the cistern pressure to rise. To our knowledge, this is the only case of hemorrhage reported in which the combined puncture has been used, and with apparent success, for the purpose of flushing out the cistern and subarachnoid space; but it has been used with benefit in cases of meningitis.

SACHS' ANTIGEN

To the Editor:—In Queries and Minor Notes, it was stated in reply to Dr. Watson's question (THE JOURNAL, May 20, 1922, p. 1558) that in Dold's test a cholesterolized antigen is used, prepared according to Sachs' method. Will you describe this method and also how to secure this antigen?

GABRIEL RIGAU, M.D., Yauco, Porto Rico.

ANSWER.—The antigen is thus prepared: A normal beef heart is freed from fat, pericardium and large blood vessels, and then ground up fine in a meat chopper. The minced heart muscle is now mixed with five volumes of 95 per cent. alcohol, and shaken vigorously in a shaking machine four or five hours. After standing at room temperature over night, it is filtered through ordinary filter paper, and placed in the icebox for at least two days; at the end of this time, it is filtered again through filter paper to remove any precipitate that formed while in the icebox. It is now ready, and is stored at room temperature. Before use in the test, it must be diluted with two volumes of alcohol, cholesterinized by the addition of from 0.045 to 0.06 per cent. of a 1 per cent. alcoholic solution of cholesterol, and titrated against a known standard antigen.

The Sachs-Georgi test for syphilis was discussed by Parker and Haigh in the *Archives of Dermatology and Syphilology* 4:67 (July) 1921.

OSGOOD-SCHLATTER DISEASE

To the Editor:—Please describe the Osgood-Schlatter disease of the tuberosity of the tibia.

MARK HOUSTON, M.D., Urbana, Ohio.

ANSWER.—Osgood-Schlatter disease (Schlatter's disease, Schlatter's sprain) is a condition of partial functional incapacity, due to thickening, separation or partial separation of the tibial tuberosity. The etiology and pathology of the disease are still obscure. Some think that the condition is a dystrophy, others that it is due to inflammation. Connell believes that the disease is a purely traumatic condition, most common in those under 17 years of age, imperfect union of the tibial tubercles being a predisposing factor. Since many cases are bilateral, and other muscular and ligamentous insertions may show periosteal thickening, DaCosta believes that the condition is probably systemic. Müller says that Schlatter's disease is a symptom of a systemic pathologic condition that manifests itself in a tendency to spontaneous separation of the epiphyses, and infractions, and that it is connected with late rachitis.

ADMINISTRATION OF TYPHOID VACCINE

To the Editor:—1. It has been my custom to advise persons who have had typhoid fever not to take prophylactic typhoid vaccination, on the assumption that they had as complete active immunity as they could develop. I would appreciate information as to whether I am following the most accepted ideas on the subject.

2. I would also like to know to what extent it is considered best to decrease the dosage of vaccine for little children and whether it is good practice not to give it at all to children under 2 years of age.

SUBSCRIBER.

ANSWER.—1. The immunity acquired by typhoid patients is usually good enough to make vaccination superfluous, provided the diagnosis has been correct. If the vaccine is to be employed, it is better to start with a small dosage.

2. Chantemesse recommends that children be given four vaccinations with doses proportioned to the weight of the child. For instance, a child weighing 35 kg. should receive half the dose, a child weighing 18 kg. one quarter of the dose for adults. The age under 2 years is not a contraindication, but in these children the disease is comparatively rare and not severe.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

SOUTH DAKOTA: Waubay, July 18. Director, Dr. H. R. Kenaston, Bonesteel.

Wisconsin Reciprocity Report

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports that at the special meeting held at Milwaukee, April 12, 1922, eight candidates were licensed by reciprocity. Four candidates were licensed on government credentials. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University		(1921)	Illinois
Northwestern University		(1910), (1921)	Illinois
Rush Medical College		(1921, 2)	Illinois
University of Michigan Medical School		(1906)	Michigan
University of Minnesota		(1898)	Minnesota
Columbia University		(1919)	New York

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Hahnemann Med. College and Hospital of Chicago		(1915)	U. S. Army
University of Illinois		(1913, 2)	U. S. Army
Medical College of Virginia		(1917)	U. S. Army

District of Columbia January Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Jan. 10, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 7 passed and 3 failed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1920) 77.2, 85.7, (1921)	84.8
Harvard University		(1919)	93.6
University Med. College of Kansas City		(1910) 80.7, (1921) 82.1,	89.5

College	FAILED	Year Grad.	Per Cent.
Howard University		(1920) 68.3, (1921)	74.6
University of Minnesota		(1920)	74

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Illinois Medical College		(1900)	Mississippi
Jefferson Medical College		(1916)	Penna.
Fort Worth School of Medicine		(1901)	Texas

Hawaii April Examination

Dr. Guy C. Milnor, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, April 11-13, 1922. The examination covered 11 subjects and included 55 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 1 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
John A. Creighton Medical College		(1917)	75

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco		(1901)	40
Atlanta School of Medicine		(1913)	70

Oklahoma April Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 11-12, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 4 candidates examined, 3 passed and 1 failed. Two candidates were granted reregistration licenses, and one candidate received a duplicate license. Thirteen candidates were licensed by reciprocity. One candidate was licensed on Navy credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College		(1913)	78
Tulane University		(1919)	83
University of West Tennessee		(1920)	75

College	FAILED	Year Grad.	Per Cent.
Meharry Medical College		(1921)	64

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1918)	Arkansas
Atlanta College of Physicians and Surgeons		(1913)	Texas
Atlanta Medical College		(1915)	Georgia
Louisville Hospital Medical College		(1900)	Arkansas
Tulane University		(1918) Texas, (1919)	Missouri
Ensworth Medical College		(1908) Kansas, (1910)	Nebraska
St. Louis College of Physicians and Surgeons		(1911)	Arkansas
University Medical College of Kansas City		(1904)	Utah
Miami Medical College		(1899)	W. Virginia
University of Tennessee		(1913), (1914)	Arkansas

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Northwestern University		(1917)	U. S. Navy

The Drugless Cults in Germany.—The *Münchener medizinische Wochenschrift* warns that the organized irregular practitioners have founded the Verband für Volksheilkunde, which is circulating petitions protesting against the proposed notification of venereal disease and compulsory treatment, claiming that the public is being enslaved, etc. The charlatans are making every effort to combat this dreaded regulation, as it will deprive them of their most fertile field of work, and they are carrying on this agitation to bring pressure to bear on the legislators. The communistic party in the reichstag is warning against the dangerous and self-seeking aims of the petition and is urging people not to sign it; and the German Antiquackery Society is appealing to the medical and lay press to expose the true motive of the petition.

Book Notices

SURGICAL AND GYNÆCOLOGICAL NURSING. By Edward Mason Parker, M.D., F.A.C.S., Surgeon to Providence Hospital, Washington, D. C., and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynæcologist to St. Joseph's Hospital, Lexington, Kentucky. Second edition. Cloth. Price, $3 net. Pp. 425, with 134 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

This book consists of six parts. The first part is biologic, and summarizes bacteriology and wound infection. The second part deals with surgical pathology and surgical nursing. The third covers minor technic in surgical nursing, application of dressings and bandages, and an outline of the Carrel-Dakin technic. In the fourth part the patient is considered; postures and the details of preparation and of observation are described. The fifth part describes the operating room, its contents, personnel and technic. There is a complete collection of photographs of instruments designed to enable the nurse to identify them. The sixth is supplementary; the gynecology dispensary, emergencies, and an epitome of surgical and of gynecologic conditions are detailed. The work is written in interesting style; it is accurate in all essentials, and covers in small space a wide field in a way sufficiently complete to supply the nurse not only with basic principles, but also with details.

DER BALKEN: EINE ANATOMISCH, PHYSIOPATHOLOGISCHE UND KLINISCHE STUDIE. Von Dr. G. Mingazzini, O. Professor an der Klinik für Nervenkrankheiten der Kgl. Universität Rom. Paper, 160 marks. Pp. 212, with 84 illustrations. Berlin: Julius Springer, 1922.

This is No. 28 of the neurologic monographs edited by Foerster and Wilmanns. It is an ideal monograph, giving to the reader a clear and authoritative account of everything known about the anatomy, embryology, physiology and pathology of the corpus callosum. The author has devoted a great deal of his recognized investigative ability to the study of this important and conspicuous, yet rather neglected and mysterious, portion of the brain, which shares with the pineal gland the honor of having been considered several hundred years ago as the seat of the soul. The most common lesions giving rise to clinical syndromes are complete or partial defect, tumors, vascular lesions, and a peculiar type of degeneration encountered in alcoholics.

ON MODERN METHODS OF TREATING FRACTURES, INCLUDING THE JACKSONIAN PRIZE ESSAY ON BONE GRAFTING. By Ernest W. Hey Groves, M.S., M.D., B.Sc., Surgeon to the Bristol General Hospital. Second edition. Cloth. Price, $8. Pp. 435, with 296 illustrations. New York: William Wood & Co., 1922.

The general lack among clinicians of an accurate conception of pathologic changes in the bones, the difference of opinion as to treatment still existing among competent surgeons, and the all too large percentage of bad results following the treatment of fractures serve to make such a monograph as this a valuable contribution to bone literature. "Bone" literature rather than "fracture" literature is employed because of the broadness of the scope of the work. The first part is devoted to the general principles of massage, mobilization and extension. The greater part of the remainder is devoted to operative methods of treatment and the experimental basis of this treatment. There is a very good summary of the more important contributions to the literature of experimental research on bone. The author has added the results of a considerable amount of experimental work of his own, and gives a clear-cut presentation of the status of bone regeneration and the living graft. The only criticism that may be offered, if it may be so designated, is the apparent inclination of the author to the operative rather than to the nonoperative side. This, of course, we recognize as less of a failing when practiced by a competent man. Nevertheless, for the great majority who are not competent, this is bad teaching, because bad results following operative exposure of a fracture are far more disastrous than when such exposure has not been made, and because bone surgery is technically difficult. Sepsis, against which every writer on the subject warns, is far more likely to occur in an open fracture than in a laparotomy wound. Many may contest the statement of the author that such sepsis is "probably postoperative in its origin." Nevertheless, the text is clearly the work of a master; it is interestingly written, and the illustrations are many and beautiful.

THE STOMACH AND ABDOMEN FROM THE PHYSICIAN'S STANDPOINT. By William Russell, M.D., LL.D., Consulting Physician, Royal Infirmary, Edinburgh. Cloth. Price, $4. Pp. 329, with 35 illustrations. New York: William Wood & Company, 1921.

At a time when many are looking for short cuts to diagnosis and the burden of proof is laid at the door of the clinical or roentgen-ray laboratories, it is refreshing to have brought back to us in a clear manner and in delightful and simple English the real value that is obtained in carefully eliciting a history and as carefully making a physical examination. Dr. Russell believes it to be the duty of the physician, as distinguished from the surgeon, to assume the responsibility of diagnosis. He decries the readiness with which exploratory operations are resorted to, and considers them the bane of differential diagnosis. A rather novel explanation of gastric disturbances is given. All center about gastric chemism. Disordered or pathologic states are divided into two classes, determined by increased or decreased hydrochloric acid secretion. These conditions are considered as clinical entities. Thus, the author speaks of an acid dyscrasia of the stomach, of which peptic ulcer is a complication or sequel. In fact, the failure to recognize this dyscrasia is the reason for the diagnosis of ulcer being made so frequently. Numerous carefully elicited histories which, in the light of our present knowledge, assisted by roentgen-ray examination, would lead to a diagnosis of ulcer, in the author's opinion, point to simple hyperchlorhydria. Only in the later chapters of the book is the prominence given to roentgen-ray examination that it deserves. Ideas are submitted which seem hardly in accord with modern views, such as sudden relaxation of spasm of the pylorus as a cause of gastric cramps. There are scarcely any references to recent work in gastric physiology. There are chapters on diseases of the stomach and intestines, spleen, liver, jaundice and the kidney. Differential diagnosis is considered very carefully. Many citations of history records from Dr. Russell's personal experience are given. To each are appended paragraphs on diagnosis and treatment. The impression gained is that this little volume would prove to be of considerably more value to the beginner than to one with the mature judgment of years of practice.

LEHRBUCH DER SPEZIELLEN PSYCHIATRIE FÜR STUDIERENDE UND ÄRZTE. Von Professor Dr. Alexander Pilcz. Sixth edition. Paper. Price, 80 marks. Pp. 315. Leipsic: Franz Deuticke, 1922.

Written specifically for students and practitioners, this textbook is limited strictly to a description of the clinical varieties of mental disease and defect. General symptomatology, pathogenesis and dynamic psychology have been intentionally omitted, on the assumption that they are of no practical value, and are of interest only to the specialist. Whatever one may think of this view, there can be no hesitation in asserting that the task undertaken has been admirably carried out. The descriptions are concise, and yet extraordinarily full; the language and style are simple, but vividly real, and there is an entire absence of dry, monotonous technicality, which so often makes this subject the bane of the student's existence. Few headings are used, each named disorder being considered under symptoms, psychic and somatic; course; prognosis; differential diagnosis; etiology, and therapy. Pathologic anatomy is described briefly when anything is known. Treatment is accorded perhaps more than its usual quota of space, a special chapter being added on the use of drugs, and is thoroughly up to date, with the exception that there is no mention of occupational therapy or psychotherapy. War experiences are quoted freely, and there is a short chapter on hypnosis. The descriptions of the psychopathic states, especially "moral insanity," are strikingly good, and both here and elsewhere the medicolegal considerations are eminently practical and useful.

Medicolegal

Negligent Treatment of Fracture

(Petefish v. Morrison (Kan.), 205 Pac. R. 651)

The Supreme Court of Kansas, in affirming a judgment for damages in favor of the plaintiff, but withouting stating the amount of the judgment, says that the plaintiff's right leg was broken near the ankle, and the defendant was called to treat the injury. He dressed the broken limb, braced it with a splint, and propped the foot straight forward with a pillow. The weight of the foot, however, caused it to turn outward, and in that position the fracture healed, so that thereafter as the plaintiff walked her right foot turned outward at an angle of nearly 90 degrees. An orthopedic surgeon testified that it is elementary in setting fractures that the limb must be placed in a normal position, immobilized, and held firmly by some method in its normal position until the bones have an opportunity to mend; that if the foot was rotated outward that was sufficient notice that the foot should be put back in a normal position and held there, independently of whether a roentgenogram was available or not. Many witnesses testified for the plaintiff that this precaution to keep the foot in position was not taken, and that it was permitted to lie over and outward to the right. The defendant's visits to his patient continued off and on for about three weeks before he discovered that her foot was everted, by which time the cartilaginous substance had so far formed that the foot could only have been straightened by more pain and suffering, while the record showed that the plaintiff had certainly borne enough of that, partly owing to the wrong position of her foot while the fracture was healing. For the defendant, there was evidence that the foot was correctly placed and the fracture properly treated; and it was argued for him that he undertook to render limited services only; that he told the plaintiff she should go to a hospital where a roentgenogram of her injury could be taken and where she would receive more attention; that her accident occurred during an epidemic of influenza; that he had so many patients he was going night and day, sleeping only three or four hours in the twenty-four, at the time; and that the eversion of the foot was caused by the plaintiff's own negligence. But the disputed facts were all disposed of by the jury's verdict; and, no error being found in the record of the trial, the judgment for the plaintiff was affirmed.

Evidence Admissible to Show Defendant was a Moron

(People v. Joyce (N. Y.), 134 N. E. R. 836)

The Court of Appeals of New York, in reversing a judgment of conviction and ordering a new trial in this homicide case, says that a number of officers and detectives of the police force testified as witnesses for the prosecution as to statements alleged to have been made by the defendant. Counsel for the defendant, in his opening of the case to the jury, stated that he would show that the defendant had a mind of a youth of 9 or 10 years. The district attorney objected on the ground that it was not a matter of defense in the case as to the condition of the defendant's mind; and the trial judge said, "He has not claimed to be insane." Counsel then went on to state that it would be proved by competent evidence that the defendant's mentality was such that he would yield if any one who had a stronger mind insisted, talked well, pleaded or threatened. But counsel, having thus assured the jury that he would establish that the defendant had the mind of a child, from which he would argue that, even assuming that the defendant made the statements attributed to him, such statements were the result of suggestion and lack of comprehension on his part of what he was stating, or the result of an illusion that he was a hero, was denied the privilege of making any proof of the defendant's mental condition. A specialist in nervous and mental diseases was called as a witness. Having testified as to his experience, and that he had examined the defendant in the county jail, he was asked to tell the condition in which he found the defendant. The district attorney objected to the question; and the judge stated that he did not understand the theory; that there was no defense of insanity interposed. Counsel then explained that he intended to prove by the physician that the defendant's mind was such that, judging from the test, he had the mind of a boy between the ages of 10 and 12 years, and that, this being so, his mind was easily influenced by people who had stronger minds; and that by beating him and talking to him, the officers would be able to get his mind in such a condition that he would not know what he was saying, or, if he did say something, it would not be true. The judge's answer was that if the defendant did not positively assert that he made no such statement to the officers at all; if he admitted that he had told the officers these things, and that he was either tweedled, tracked, or tricked into it, that would be relevant testimony. But he had said that he did not make any such statement; and the only theory possible was that the testimony which he himself gave was false; which the court would not want to assume. However, the court of appeals holds that the trial justice was in error in suggesting that the defendant was required to file a special plea of insanity or lack of mentality as a prerequisite to the introduction of evidence of insanity or lack of mentality. If the defendant was what is known in medical jurisprudence as moron; that is, one whose intellectual development proceeds normally up to about the eighth year of age, and then arrested, never exceeds that of a normal child of about 12 years, evidence of such fact was material for consideration by the jury. The fact that the defendant denied the statements testified to by the officers was not a legitimate reason for a rejection of the evidence. Such denial would not bar him from offering such proof, or his counsel from arguing that, in the event he made such statements, he was not of sufficient mentality to understand what he was stating, or that his mind was controlled by a superior force or intellect. A question put to the defendant's mother, as to whether he had a fall when he was a little boy, was likewise competent, and an answer thereto should have been permitted.

Summary Quarantine and the Writ of Habeas Corpus

(Ex parte Caselli (Mont.), 204 Pac. R. 364)

This was an application, in chambers, before Chief Justice Brantly of the Supreme Court of Montana, for a writ of habeas corpus. In discharging the writ and remanding the complainant to the custody of the sheriff, the chief justice says that there is, perhaps, no authority to be found at this late day which denies that the legislature, under its police power, may enact laws authorizing the establishment of quarantine regulations and requiring the detention of persons affected with contagious diseases dangerous to the public health, without resort to a preliminary judicial proceeding to determine the character of the disease and the facts constituting the danger to public health. Under the Montana statute involved in this case, the proper health officer may issue his warrant directing the arrest, without notice, of any person reasonably suspected of having a communicable disease, and his detention for the time being and until the existence and character of the disease can be determined; and, in case his course of conduct or condition is such, in the judgment of the health officer, as to render it necessary, in order to protect the public health, he may isolate the person in question until he recovers from the disease or until he may be released without further danger to the public. If, however, after his arrest, the person challenges the right of the authorities to continue his detention, he is entitled to have it legally inquired into on habeas corpus.

The existence of the power of the health officer to detain any one rests on the existence of the facts making such detention necessary. The law does not deprive any citizen of the right to be heard on this question, but he is not entitled to a hearing in the first instance; that is to say, before he is taken for quarantine. The fourteenth amendment to the constitution of the United States and the sections of the constitution of the state of Montana requiring due process of law have no application to this class of cases. Counsel for the state insisted that the finding of the county health officer in such a case, declaring that the detained citizen is

afflicted with a contagious disease, and is therefore dangerous to the public health, is conclusive and not subject to review by the courts. There is some conflict of authority on this subject; but the great weight of it supports the rule stated: the law does not tolerate the arrest and detention of any citizen without the right to challenge the existence of the facts on which he is held.

The complainant in this case was held by the sheriff under an order of the health officer of the city and county of Missoula, made under the quarantine regulations established by the state board of health, under Chapter 106 of the Laws of the Sixteenth Legislative Assembly, on the ground that, according to the information of the health officer, she was affected with gonorrhea, a disease declared by the statute to be contagious, communicable, and therefore dangerous to the public health. She applied for a writ of habeas corpus to obtain her release on the grounds that she was not granted a judicial hearing prior to the time she was taken and detained by the sheriff, and that the facts did not exist showing that she was affected with the disease and so conducted herself as to be dangerous to the public health. The facts introduced at the hearing established clearly that she was affected with gonorrhea. This was ascertained by scientific means by the bacteriologist employed by the state board of health, on the application of the health officer. The only uncertainty was whether, in the condition she was in, she would, in fact, be dangerous to the health of the community in which she lived if she were allowed to go at large. The testimony was not satisfactory, but it did disclose circumstances which justified the inference that she, within a comparatively short time prior to her arrest, had been plying her trade of prostitute; and, on all the evidence, the conclusion is reached that the health officer was justified in directing her detention until she should become cured or until she might be safely allowed to go at large.

Indictable Prescribing of Narcotics

(United States v. Behrman (U. S.), 42 Sup. Ct. R. 303)

The Supreme Court of the United States, reversing a judgment sustaining a demurrer to an indictment of the defendant, a physician registered under the Harrison Narcotic Law, says that the law contains an exception to the effect that it shall not apply to the dispensing or distribution of such drugs to a patient by a registered physician in the course of his professional practice only, nor to the sale, dispensing or distribution of the drugs by a dealer to a consumer under a written prescription by a registered physician. The rule applicable to such statutes is that it is enough to charge facts sufficient to show that the accused is not within the exception. The district judge who heard this case was of the opinion that prescriptions in the regular course of practice did not include the indiscriminate doling out of narcotics in such quantity to addicts as charged in the indictment, but, out of deference to what he deemed to be the view of a local district judge in another case, announced his willingness to follow such opinion until the question could be passed on by this court, and sustained the demurrer. In this court's opinion, the district judge who heard the case was right in his conclusion and should have overruled the demurrer.

Former decisions of this court have held that the purpose of the exception is to confine the distribution of these drugs to the regular and lawful course of professional practice, and that not everything called a prescription is necessarily such. It may be admitted that to prescribe a single dose, or even a number of doses may not bring a physician within the penalties of the act; but what was here charged was that the defendant physician, by means of prescriptions, had enabled one, known by him to be an addict, to obtain from a pharmacist the enormous number of doses contained in 150 grains of heroin, 360 grains of morphin, and 210 grains of cocain. Undoubtedly, doses may be varied to suit different cases, as determined by the judgment of a physician. But the quantities named in the indictment were charged to have been intrusted to a person known by the physician to be an addict, without restraint on him in its administration or disposition by anything more than his own weakened and perverted will. Such so-called prescriptions could only result in the gratification of a diseased appetite for these pernicious drugs, or result in an unlawful parting with them to others, in violation of the act as heretofore interpreted in this court.

Test When Defense Is Insanity—Nonexpert Opinions

(Feree v. Commonwealth (Ky.), 236 S. W. R. 246)

The Court of Appeals of Kentucky, in affirming a judgment of conviction of defendant Feree, says that he was charged with wilful murder, and the defense was made that he was insane at the time of the shooting. But no rule is more generally acknowledged, nor more fully sustained by reason, than the one which presumes every person to be of sound mind until the contrary is shown by a preponderance of the evidence. One who enters a plea of insanity to a criminal charge must show by a preponderance of the evidence that his mind was so far gone, so diseased and unsound, that he did not know the consequences of his act, nor realize that he was doing wrong at the time of the act of which complaint is made. It is the theory of some students of physiology, and assented to by many alienists, that most persons have insane delusions on one or more subjects although they are of sound mind on all other subjects and may be good business people, industrial workers or leaders of thought; and this may or may not be true. This court thinks, however, that the true test in criminal cases is: Did the defendant at the time he struck the blow or fired the shot which injured or killed another know or realize the consequences of his act? If he did, then he is guilty both at law and in morals. If he did not know and was not able to realize the consequences of his act, then he was not responsible therefor, either in law or morals. Even though one may be possessed of insane delusions on one or more subjects, he is liable for his criminal acts, if at the time he performs them he knows and realizes that he is doing wrong. Cases are not infrequent in which one is sane part of the time and insane at other times. If such a one commit a crime during his lucid intervals, he is as responsible as if he had never suffered from dementia. The defendant, Feree, may have been insane, or so unbalanced mentally at the time of his breakdown some years before the killing with which he was charged in this case, that he would not have been responsible for his criminal act; but if he afterward recovered, his responsibility returned at the same time.

With regard to allowing nonexpert witnesses to express opinions as to the mental soundness of a person at a certain time, the rule in Kentucky is to allow a nonexpert witness to give his opinion as to the mental condition of another only after he has testified to facts showing a familiarity on his part with the life, habits and conduct of the one whose mental condition is under consideration; and, even then, his opinion, this court has held, is not so important as the evidence which he gives showing the idiosyncrasies or normalcy of the mind of the one under inquiry. In other words, the opinion of a nonexpert witness as to the mental status of another cannot be received in evidence because it has no probative value unless it is supported by a statement of facts from which the opinion can be and is reasonably deduced; and the opinion can be of no greater value as evidence than the facts on which it is based.

Society Proceedings

COMING MEETINGS

Colorado Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

June, 1922, **23**, No. 6

*Food Requirements of Children. III. Fat Requirement. L. E. Holt and H. L. Fales, New York.—p. 471.
*Frequency of Tuberculosis in Childhood. F. Hamburger, Styria, Austria.—p. 481.
*Idiopathic Aplastic Anemia. C. Herrman, New York.—p. 484.
*Spasmophilia and Alkali Reserve of Blood. J. K. Calvin and M. P. Borovsky, Chicago.—p. 493.
*Active Immunization of Nurses Against Diphtheria in a Children's Hospital. J. V. Cooke, St. Louis.—p. 498.
*Aspiration of Stearate of Zinc in Infancy. H. Heiman and P. W. Aschner, New York.—p. 503.
*Healing of Hypertrophic Pyloric Stenosis After Fredet-Rammstedt Operation. M. Wollstein, New York.—p. 511.
Vitamin Requirement of Various Species of Animals. V. E. Nelson, A. R. Lamb and V. G. Heller, Ames, Iowa.—p. 518.
*Peculiar Eruptive Disease Occurring in Infancy. J. H. Park, Jr., and J. C. Michael, Houston, Texas.—p. 521.
*Value of Intracutaneous Tuberculin Test in Extensive Tuberculosis. W. M. Happ and H. R. Casparis, Baltimore.—p. 527.
*Bacteriolysant Therapy of Bacillary Dysentery in Children. W. C. Davison, Baltimore.—p. 531.
Review of Literature of Syphilis in Infancy and Childhood. P. J. White, St. Louis.—p. 535.

Fat Requirement of Children.—Holt and Fales assert that a certain amount of fat should be supplied to provide fat soluble vitamin. This amount is not yet known. Fat probably has an important influence on mineral metabolism especially on calcium metabolism. Fat is probably necessary for proper digestion and utilization of protein and on this account it seems desirable to supply as much fat as protein in the diet. Fat helps to maintain normal physical, bacteriologic and chemical conditions in the intestine. It also exerts a protective action against the irritating effects of the products of carbohydrate fermentation. A great reduction of fat in the diet increases the susceptibility to infection, especially to tuberculosis. The authors urge that the grounds for the current impression regarding the harmful effects of fat on children should be investigated carefully. There is little evidence that a liberal amount of fat in the diet is harmful to children with normal digestion and much evidence that fat is an important and necessary component of the diet during the entire growth period. In general, it seems rational to supply in the diet of the child as much as 4 gm. fat per kilogram daily at one year, decreasing the amount to about 3 gm. per kilogram at 6 years and maintaining this value throughout the remainder of the growth period.

Frequency of Tuberculosis in Children.—The method employed by Hamburger is this: All children to be examined are first subjected to a cutaneous or percutaneous test with concentrated tuberculin. Those who do not react, from twenty-four to forty-eight hours later, receive a subcutaneous injection of 0.01 mg. tuberculin. Those who do not react after the second injection are given a third injection after a further twenty-four hours. If the test is negative, another injection is given after the lapse of another twenty-four hours, or at most forty-eight hours, the dosage being raised to 1 mg. If the place of injection does not show any reaction, such as definite redness and infiltration, the child may be regarded as free from tuberculosis with nearly absolute certainty. In doubtful cases, an injection of 10 mg. is given.

Idiopathic Aplastic Anemia.—Herrman reports a case in a child, 4 years old, in which marked improvement was obtained from transfusion of 380 c.c. blood from her father.

Alkali Reserve in Spasmophilia.—In three cases of spasmophilia in infants studied by Calvin and Borovsky no evidence of "alkalosis" was found. In fact, there was a tendency for the alkali reserve to be lowered during the spasmophilic stage and gradually to be increased as the cases recovered.

Immunization Against Diphtheria.—During a four years' period all nurses with positive Schick reactions were given injections of toxin-antitoxin by Cooke and as a result more than 80 per cent. were immunized. In a small number the Schick reaction remained positive after two series of toxin-antitoxin injections. As a result of the immunization, there was a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent. as compared to a previous three years' period.

Aspiration of Stearate of Zinc by Infants.—Stearate of zinc has largely replaced talcum as a dusting powder in the nursery. With its ever widening use there has developed a striking increase in the number of disastrous results of infants from its accidental aspiration. Heiman and Aschner present a clinical study of twelve cases and the results of experiments with zinc stearate insufflation in animals. The onset of trouble is sudden and stormy, with rapid respirations and cyanosis. Complete asphyxia may occur. In eight cases the initial partial asphyxia was followed by a gradual recovery without definite involvement of the lungs. The rapid respirations and cyanosis which followed immediately on the inhalation of the powder subsided during the course of three days. The temperature was only slightly elevated. The stearate of zinc container as now prepared for the nursery is a distinct menace to the health of infants. The authors ask the medical profession to eliminate this dangerous type of container from the nursery.

Healing After Fredet-Rammstedt Operation.—The stomach of twenty-five infants who came to necropsy with hypertrophic pyloric stenosis were examined by Wollstein. Two children died before operation, and the rest succumbed from twenty-four hours to two years after the Fredet-Rammstedt operation had been performed. The lesion in hypertrophic pyloric stenosis is a hyperplasia of the unstriped muscle cells of the circular coat, while the connective tissue is not increased. After the Fredet-Rammstedt operation healing is brought about by the cells of the serosa and submucosa, but the unstriped muscle cells take no part in the process. The wound in the pylorus is healed within nine days. The pylorus has become relaxed within two weeks. The stomach has returned to its normal size within a month and the gap between the cut ends of the muscle coats has practically disappeared in six weeks. In two years only a thin line of connective tissue fibers separates these two muscle ends, and the stomach is quite normal. In contrast to the operation of gastro-enterostomy which leaves the pylorus unchanged, the Fredet-Rammstedt operation cures the pyloric lesion.

Eruptive Disease in Children.—Twenty-one cases of what Zahorsky has termed "roseola infantum," are analyzed by Park and Michael. The outstanding features are the abrupt onset, the high fever of from three to five days' duration without apparent cause, and the appearance of a morbilliform rash coincident with a critical fall of temperature to normal. Additional points of distinction are the apparent noncontagiousness, and the predilection of the disease for infancy. Moderate leukopenia and lymphocytosis appear to be the only significant laboratory findings. This condition is distinctive and appears to be a clinical entity. The etiology is unknown.

Value of Intracutaneous Tuberculin Test.—In order to compare the results of intracutaneous tests with those of the Pirquet cutaneous test, Happ and Casparis did Pirquet tests in most instances at the same time as the intracutaneous tests. In miliary tuberculosis and tuberculous meningitis in infants and children the Pirquet cutaneous test was positive in just over 50 per cent. of the cases. The intracutaneous test is more sensitive and as opposed to the Pirquet test it not only affords a method of accurately measuring the amount of tuberculin given, but enables one to increase the amount at will. The authors assert that if a high enough concentration of tuberculin is given intracutaneously, a positive reaction will be obtained in practically all cases of tuberculosis.

Bacteriolysant Therapy of Dysentery.—As far as can be judged from twelve cases of bacillary dysentery in children,

in which bacteriolytic filtrates in amounts of from 5 to 1,381 c.c. were administered by Davison, bacteriolysant therapy did not influence the mortality or the course of the disease.

American Journal of Roentgenology, New York

May, 1922, **9**, No. 5

*Roentgen Rays and Radium in Diagnosis and Treatment of Carcinoma of Prostate. H. C. Bumpus, Rochester, Minn.—p. 269.
Roentgen-Ray Diagnosis of Nonopaque Foreign Bodies in Air Passages. W. F. Manges, Philadelphia.—p. 288.
Practical Method of Roentgen-Ray Examination of Heart. R. G. Karshner and R. H. Kennicott, Los Angeles.—p. 305.
Protective Rubber Glove Rack. R. G. Van Nuys, Oakland, Calif.—p. 314.
Present Status of Deep Roentgen-Ray Therapy in Europe. W. H. Stewart, New York.—p. 315.
*Treatment of Diphtheria Carriers by Means of Roentgen Ray. P. M. Hickey, Detroit.—p. 319.

Carcinoma of Prostate.—Bumpus asserts that the average duration of cancer of the prostate, if untreated, is approximately three years. Roentgenograms show that metastasis to the bone occurs in about one third of the cases of cancer of the prostate. Metastasis from atypical carcinoma of the prostate, in which the cells, because of their tendency to early metastasis, produce only slight local enlargement, may frequently be mistaken for Paget's disease. In order to treat successfully cancer of the prostate with radium it is necessary to use in the aggregate large doses (from 3,000 to 4,000 mg. hours), exposing all parts of the gland to comparatively small doses. The increased duration of life following radium treatment in cases of cancer of the prostate is in direct proportion to the amount of radium radiation applied. No one method of application radiates all portions of the gland. The malignant gland must be radiated by urethral and rectal exposures, and by needles inserted directly into the neoplasm in order to produce complete radiation of all portions. Sacral anesthesia is a useful adjunct in the application of radium needles, making it possible to place the radium accurately and to change the position of the needles without pain; thus a more thorough radiation of the gland is accomplished.

Treatment of Diphtheria Carriers by Roentgen Ray.—Roentgen-ray treatments were given to diphtheria carriers by Hickey over the region of the tonsils, nose and mastoid areas, according to the type of the case. In the throat cases, that is, those in which Klebs-Loeffler bacilli were found in pharyngeal secretions, the treatment was given on each side of the neck, the central rays being directed toward the tonsils. In the nasal cases, the treatment was given directly over the nose, and in the ear cases over the mastoid area of the ear, which showed Klebs-Loeffler bacilli in the discharge. Nineteen throat cases were treated, with a definite cure in fifteen; of six nasal cases, four were cured. Nine cases of otitis media presenting Klebs-Loeffler bacilli were treated, with four cures. A comparison shows that in untreated cases of diphtheria carriers, there was 34 per cent. of spontaneous cures; cases treated with mercurochrome, 68 per cent. of cures; pharyngeal cases treated by the roentgen ray, 80 per cent. of cures.

American Journal of Tropical Medicine, Baltimore

May, 1922, **2**, No. 3

Microfilaria of Filaria Bancrofti. W. L. McFarland, New York.—p. 187.
Effect of Emetinized Blood and Serum from Man and Cat on Pathogenic Entamebae in Stools. W. Allan, Charlotte, N. C.—p. 193.
Experimental Investigation of Supposed Poisonous Qualities of Granary Weevil, Calendra Granaria. F. Defiel, Minneapolis.—p. 199.
Death Caused by Ascarides. F. C. Caldwell, Panama.—p. 213.
Blastocystis Species in Culture. K. M. Lynch, Dallas, Tex.—p. 215.
Certain Coprozoic Organisms in Cultures from Man. K. M. Lynch, Dallas, Tex.—p. 223.
*Typhus Fever in Boston; Review of Newer Methods of Diagnosing Typhus. G. C. Shattuck, Boston.—p. 225.
Relapsing Fever Spirochetes of Panama. J. H. St. John and L. B. Bates, Ancon, C. Z.—p. 251.

Typhus in Boston.—On the basis of the estimated total of medical cases admitted to the Boston City Hospital during a ten-year period, Shattuck says, the proportion of typhus diagnosed is slightly less than one case per ten thousand. Failure to diagnose typhus seems to have occurred in the proportion of from one to two cases per ten thousand. If this be true, the actual occurrence of fairly typical typhus cases during the past ten years was at the rate of from two to three cases per ten thousand admitted, but if any considerable number of atypical cases suggestive of typhus were in fact typhus, the figure should be higher. The epidemiologic aspect of the question requires serious consideration because, should typhus begin to spread in Boston, the recognition of mild or atypical cases in their early stages would assume serious importance and the problems of differential diagnosis would be much the same as those encountered in the study of the hospital records.

American Review of Tuberculosis, Baltimore

May, 1922, **6**, No. 3

*Healing by Resolution in Experimental Pulmonary Tuberculosis. L. U. Gardner, Saranac Lake, N. Y.—p. 163.
*Chemotherapy of Silver and Arsenic Compounds in Experimental Tuberculosis. M. I. Smith, Washington, D. C.—p. 183.
Nonspecific Cross Fixation of Complement with Wassermann and Tuberculosis Antigens. A. D. Dulaney, Columbia, Mo.—p. 192.
*Tuberculosis in Infancy and Childhood: Report of Case; Incidence and Necropsy Findings in Forty Cases. L. W. Smith, Boston.—p. 201.
*Diagnosis of Active Tuberculosis in Children. C. B. Gibson and W. E. Carroll, Meriden, Conn.—p. 213.
*Heliotherapy in Treatment of Laryngeal Tuberculosis. W. C. Voorsanger.—p. 223.
Prevention of Tuberculosis: Theory and Possibilities. D. M. Lewis, New Haven, Conn.—p. 229.
Immunity to Tuberculosis. A. K. Krause, Baltimore.—p. 233.

Healing in Experimental Pulmonary Tuberculosis.—To the general pathologist, healing of the lesions induced by the tubercle bacillus usually signifies fibrosis or calcification. A relatively small group of tuberculosis experimentalists have for twenty years or more been familiar with a low virulent strain of tubercle bacillus capable of inducing a different type of healing; namely, a complete disappearance of visceral lesions from the body of the experimental animal. The organism which these observers have used is known in the Saranac Laboratory as Rk. Isolated by Trudeau from a human case of meningitis in 1891, this organism has maintained a constant low degree of virulence. The visceral lesions resulting from its inoculation tend to heal spontaneously, but Gardner says none of them has worked out by histologic study the mechanism of the healing process. The illustrations accompanying Gardner's article demonstrate the fact that the R 1 strain of tubercle bacillus is capable of producing lesions which progress to caseation, and that this caseation, together with the accompanying proliferation of fixed tissue cells, is then absorbed. The healing process is one of resolution, of which no trace remains at the site of the former lesion.

Chemotherapy of Silver and Arsenic Compounds in Experimental Tuberculosis.—An investigation conducted by Smith on the chemotherapy of some arsenic and silver compounds in tuberculosis has shown that neo-arsphenamin and silver arsphenamin have a very slight inhibiting action on the growth of the tubercle bacillus in vitro. Colloidal silver oxid has no effect whatever on its growth, while silver methylene blue has a very considerable inhibiting action on its growth. None of these substances has any demonstrable effect on the pathogenicity of the tubercle bacillus when exposed to their action in vitro at body temperature for forty-eight hours. None of these substances when administered to experimentally infected tuberculous guinea-pigs has any favorable influence on the course of the disease.

Tuberculosis in Infancy.—A case of double miliary infection by the human tubercle bacillus in a child, aged 11, is presented by Smith. The outstanding pathologic features of the case were the unusual numbers of organisms which stain readily with methylene blue, the two separate and distinct crops of miliary lesions, and a peripheral gliosis in the cord and cerebrum. The statistics on 200 consecutive necropsies from the Infants' Hospital are reported, showing an incidence of 20 per cent. tuberculosis. An analysis of these figures is made showing the distribution of the lesions and their significance.

Diagnosis of Tuberculosis in Children.—Gibson and Carroll emphasize that the diagnosis of tuberculosis in children is

not a subject for dogmatism. It is their belief, however, that active tuberculosis is invariably manifested by signs and evidences of bacterial intoxication. As long as there is an active tuberculous focus in the body, some indication of constitutional toxemia will be discovered either by physical diagnosis—the best means—or by some test or reaction. One of the most interesting procedures of this nature is the auto-urine test of Wildbolz. Gibson and Carroll have used the test on 105 children and it has been of value in establishing a definite diagnosis of active tuberculosis in certain cases and of great assistance in ruling out nontuberculous conditions. Fifty-six cases previously classified clinically reacted positively. The test not only corroborated physical findings of activity in 98 per cent. of cases but brought to light a definite diagnosis in six children whose conditions had not been finally decided on. Negative results were obtained in forty-nine cases and with one exception these results were not at variance with the opinions reached after clinical examination. The percentage of the diagnoses of nontuberculous conditions in these cases which were corroborated by the auto-urine tests was 97.9. Therefore, the auto-urine test deserves a definite place among the various methods employed in diagnosis of active tuberculous disease.

Heliotherapy of Laryngeal Tuberculosis.—Voorsanger emphasizes the value of heliotherapy in the treatment of laryngeal tuberculosis, particularly in the infiltrative and mild ulcerative stages where, if carried out conscientiously for a period of six months, complete arrest is possible. One of the greatest benefits of heliotherapy is the alleviation of pain, especially in hopeless cases. The solar therapeutic laryngoscope of composition metal materially increases the efficacy of the application of sunlight to the larynx, in that it permits protracted exposure without causing painful hyperemia.

Boston Medical and Surgical Journal

June 15, 1922, **186**, No. 24

International Mind in Medicine. K. Emerson, Worcester, Mass.—p. 795.
Congenital Anatomic Defects of Spine and Ribs. J. W. Sever, Boston.—p. 799.

Colorado Medicine, Denver

June, 1922, **19**, No. 6

Chorionepithelioma. Report of Cases. H. A. Black, Pueblo.—p. 113.
*Resistance to Tuberculosis—Study of Influence of Carbon Dioxid on Tubercle Bacillus. H. Gauss, Denver.—p. 118.
*Pernicious Anemia as Studied Through a Remission. W. Grieg, Jr., and W. S. Dennis, Denver.—p. 125.
Consciousness and Secretions. L. W. Cole, Denver.—p. 127.

Effect of Carbon Dioxid on Tubercle Bacillus.—Gauss' study indicates that the concentration of carbon dioxid found to inhibit the growth of the tubercle bacillus occurs normally in the human body, and that this concentration probably does inhibit the growth of the tubercle bacillus, thus establishing this factor as significant in the resistance to tuberculosis.

Study of Pernicious Anemia During a Remission.—A case of pernicious anemia showing a remission during which the hemoglobin rose from 10 to 56 per cent. in twenty-one days is reported by Grieg and Dennis. With the rise in hemoglobin content were showers of erythroblasts and megalocytes as well as leukocytes and myelocytes. Early disturbances of the sensory nerves and numbness of the limbs were complained of in 1914. The absence of free hydrochloric acid from the gastric secretions and a long history of recurring attacks of mild diarrhea, and the blood chemical findings of a slight nitrogen retention and an acidosis not associated with ketonuria seem to be in keeping with the chemical findings reported by others in this disease.

Journal of Industrial Hygiene, Boston

June, 1922, **4**, No. 2

Dysmenorrhea as an Industrial Problem. S. R. Meaker, Boston.—p. 49.
Analysis of 123 Cases of Anthrax in Pennsylvania Leather Industry. H. F. Smyth and E. Bricker, Philadelphia.—p. 53.
Experiments in Air Conditioning. P. Drinker and R. M. Thomson, Boston.—p. 63.
Experimental Observations on Relation Between Atmospheric Conditions and Production of Fatigue in Mine Laborers. A. J. Orenstein and H. J. Ireland, Johannesburg, S. A.—p. 70.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1922, **19**, No. 4

Functional Evidence of Phylogeny of Nervous System as Shown by Behavior and Resistance of Developing Rat to Strychnin. E. W. Schwartze, Washington, D. C.—p. 273.
*Pharmacologic Studies on Acetone. W. Salant and N. Kleitman, Augusta, Ga.—p. 293.
Toxicity of Skatol. W. Salant and N. Kleitman, Augusta, Ga.—p. 307.
*Action of Mercury. W. Salant and N. Kleitman, Augusta, Ga.—p. 315.
Changes with Advancing Age in Resistance of Albino Rat to Arsenic. F. S. Hammett and J. E. Nowrey, Jr., Philadelphia.—p. 331.
Relative Toxicity of Germanium and Arsenic for Albino Rat. F. S. Hammett, J. H. Muller and J. E. Nowrey, Jr., Philadelphia.—p. 337.

Pharmacology of Acetone.—Salant and Kleitman's experiments show that acetone possesses a double action causing depression as well as stimulation, but it is chiefly a depressant. These results seem to contradict some of the statements in the literature concerning the action of acetone. Salant and Kleitman never observed cardiac acceleration; nor could they corroborate the statement of Albertoni that after large doses respiration was regular. As to the potency of acetone, it is evident that its action is not very strong, but is nevertheless considerable. It is particularly interesting to note that its effect was greatly augmented when a number of just active or subminimum doses were given. Though the amounts of acetone present in the blood in acidosis are comparatively small, it should be borne in mind that the tissues and organs in the body may be exposed to its action for a considerable period. There is, therefore, no justification for the assumption that acetone is without effect in those conditions simply because its concentration in the blood is low.

Mercury Causes Fall in Blood Pressure.—Salant and Kleitman noted that the intravenous injection of the acetate, succinate and benzoate of mercury into cats, dogs and rabbits produced a sudden fall in blood pressure which was very marked and persistent. Depression and later paralysis of respiration also occurred. Cardiac inhibition was produced by the intravenous injection of the salts of mercury in cats, but not in dogs or in rabbits. Decreased irritability of the vagus was observed in cats after the intravenous injection of the organic salts of mercury. That the fall in blood pressure after mercury was of cardiac origin was shown by observations on changes in the volume of the kidney. Perfusion of the turtle heart with the different salts of mercury produced cardiac depression, irregularity and delirium cordis. Concentrations of one part of mercury to one million parts of Ringer's solution, and even one to ten million, were effective. The frog's heart was more resistant to mercury than the turtle's heart. No delirium cordis was observed. The action of mercury is cumulative.

Laryngoscope, St. Louis

May, 1922, **32**, No. 5

Facial Paralysis and Surgical Repair of Facial Nerve. K. W. Ney, New York.—p. 327.
*Liver Tunnel and Cardiospasm. H. P. Mosher, Boston.—p. 348.
New Operative Technic for Operative and Postoperative Treatment of Maxillary Sinus Diseases. H. B. Lemere, Omaha.—p. 363.
Aeration of Posterior Accessory Sinuses in Acute Optic Neuritis. L. E. White, Boston.—p. 382.

Liver Tunnel and Cardiospasm.—Roentgenograms of the lower end of the esophagus often show it ending in a nipple-like point. Between this and the fundus of the stomach there is a gap. This varies in length but may measure 1 inch or even 1½ inches. Mosher asserts that this gap is the closed liver tunnel in which the subdiaphragmatic part of the esophagus runs. The lower end of the esophagus has liver on the right, in front, and in many cases a thin tongue of liver hooks round its left edge like a sickle. In reviewing ten cases of cardiospasm Mosher found a stricture in all. They are called cardiospasm because the obstruction occurred at the lower end of the esophagus, the esophagus ended in the characteristic nipple-like point, and swallowing of cold fluids increased the difficulty, whereas swallowing of warm drinks made the passage of food through the esophagus easier. The stricture found in these cases varied from a slight crescentic fold in the right quadrant of the esophagoscope in the region of the hiatus to a full annular stricture with a central open-

ing. In the cases which showed the crescentic fold steady pressure with the end of the esophagoscope usually resulted in the tube slipping by into the normal esophagus below and through this into the stomach. The withdrawal of the tube disclosed a vertical slit in the mucous membrane of the esophagus. Three of the cases had a full stricture with a central opening. This stricture was at the hiatus or rather at the upper edge of the liver. On divulsing the stricture with the mechanical dilator a crescentic mounding was seen in the right field below it. Steady pressure caused the tube to pass this and enter the subdiaphragmatic esophagus and then continue on into the stomach. This mound, Mosher believes to be the upper edge of the liver. In one case there was a narrowing of the whole length of the liver tunnel. The cause of the annular stricture at the upper edge of the liver tunnel or of the narrowing of the whole tunnel will be found, Mosher believes, in previous infection of the lesser omentum which may result in temporary or permanent narrowing of the liver tunnel.

Minnesota Medicine, St. Paul

June, 1922, **5**, No. 6

Traumatic Surgery as Viewed from an Industrial Standpoint. W. O'N. Sherman, Pittsburgh.—p. 343.
*Causes of Failure of Operations for Chronic Appendicitis. C. J. Rowan, Iowa City, Ia.—p. 348.
*Primary Carcinoma of Lung. R. I. Rizer and H. C. Habein, Minneapolis.—p. 352.
Examination of Teeth in Group Medicine. B. S. Garner, Rochester, Minn.—p. 356.
Osteomyelitis. C. C. Allen, Austin, Minn.—p. 359.
Premenopausic Uterine Prolapse. E. Z. Wanous, Minneapolis.—p. 362.
Nontuberculous Infection of Lungs. H. M. Conner, Rochester, Minn.—p. 364.
Experiences in Feeding of Whole Lactic Milk in Certain Conditions of Infancy. C. O. Kohlbry Duluth, Minn.—p. 369.
Résumé of Partial Rectal Prolapse with Suggestion as to Treatment. W. A. Fansler, Minneapolis.—p. 372.
Puerperium from Standpoint of Neuropsychiatrist. C. E. Riggs, St. Paul.—p. 375.

Causes of Failure After Appendectomy.—Believing that a considerable amount of trouble complained of after appendectomy may be due to adhesions, Rowan regards as valuable the suggestion of Gibson to use 5 per cent. picric acid in 95 per cent. alcohol. Its antiseptic action is as strong as tincture of iodin and its penetrating power as great, it is less irritating to skin and peritoneum, and peritoneal adhesions are not nearly so likely to occur following its use as a skin antiseptic. After a careful study of his cases, Rowan feels that the results of operation for chronic appendicitis are not satisfactory and that there is considerable room for improvement. He suggests that these patients should have more careful examination and often more prolonged observation, especially if the condition is not in every way typical. No patient should be regarded as having typical chronic appendicitis unless a history of a former characteristic acute attack is obtainable. Extra care and consideration should be used before advising operation in neurotics, especially those with colitis or visceroptosis. More exploratory incisions should be used in preference to the muscle-splitting incision, and always in atypical cases; and the exploration should not end with the discovery and removal of a diseased appendix.

Primary Carcinoma of Lung.—When a patient has dyspnea, deep dull chest pain with hemoptysis, and possibly some abnormal chest findings, Rizer and Habein state malignancy of the lung should be considered. They report four cases in which the admitting diagnoses were tuberculosis, weakness of left arm and left leg; asthma, aneurysm or bronchiectasis and pleurisy with effusion, respectively. The final diagnosis in these cases, in the order named, was: primary carcinoma of the left lung; primary carcinoma of the lung with brain metastases; carcinoma of the right lung, with abscess and primary carcinoma of the right lung. In each case the clinical diagnosis was confirmed at the necropsy and extensive metastases were found.

New Orleans Medical and Surgical Journal

June, 1922, **74**, No. 12

Reminiscences. E. S. Lewis.—p. 744.
Address of Dr. Matas at the Meeting of the Faculty of the School of Medicine on May 23, 1912.—p. 767.
Address to Dr. E. S. Lewis. E. D. Martin.—p. 776.

New York State Journal of Medicine, New York

June, 1922, **22**, No. 6

Sequels of Epidemic Encephalitis. L. F. Barker, Baltimore.—p. 251.
Communicability and Serum Treatment of Poliomyelitis. H. L. Amoss, New York.—p. 256.
Vasoligature and Steinach's Investigations. C. H. Chetwood, New York.—p. 260.
Abuse of Cesarean Section. R. L. De Normandie, Boston.—p. 265.
Effects of Roentgen Ray on Infected Lymph Tissue of Nasopharynx. W. D. Witherbee, New York.—p. 269.
Study of Paranoid Trends in Hysteria. P. R. Lehrman, New York.—p. 272.
*Clinical Studies of Quinidin. III. Some Results of Quinidin Treatment of Auricular Fibrillation. R. L. Levy, New York.—p. 276.
Heliotherapy in Tuberculosis. H. L. Grasso, Perrysburg, N. Y.—p. 281.
Production of Antisheep Amboceptor in Mule. R. Gilbert, Albany, N. Y.—p. 286.

Quinidin in Auricular Fibrillation.—In view of the possibility of the occurrence of occasional embolic phenomena and of serious disturbances in the cardiac rhythm, Levy urges that until the criteria for choosing favorable cases are more clearly defined, patients with auricular fibrillation receive quinidin in bed, under careful supervision and preferably in a hospital, where the behavior of the heart can be studied with the aid of graphic records. Carefully administered, this drug is a therapeutic agent of great value; indiscriminately given, it may, on occasion, be expected to cause disastrous effects.

Philippine Islands Medical Association Journal, Manila

January-February, 1922, **2**, No. 1

Probable Endemicity of Schistosomum Japonicum in Philippine Islands. M. Paz Mendoza-Guazon.—p. 1.
Carcinoma of Maxillary Antrum. V. C. Alcantara.—p. 7.
Etiologic and Clinical Studies on Meningitis. W. Vitug.—p. 8.
Frequency of Various Presentations and Positions Among Filipino Women. A. Villarama.—p. 13.
*Organisms for Two Sporadic Cases of Cerebrospinal Meningitis. C. Monserrat.—p. 15.

Organism Isolated from Cerebrospinal Meningitis.—The organisms isolated in the two cases of meningitis reported by Monserrat resembled morphologically and in staining characters the true meningococcus, differing however in the rapid profuse growth obtained in all ordinary mediums from the beginning, their ability to grow at room temperature, and their inability to ferment any sugar medium. The formation of uniform emulsion in physiologic solution of sodium chlorid is a constant character of these two strains resembling in this respect the normal meningococcus, though there is a certain tendency to agglutinate spontaneously when observed microscopically in 0.85 per cent. salt solution. The absence of pigment in the growth on ordinary and special mediums distinguishes these organisms from the chromogenic D flavus group. At the same time they differ from the D flavus-like organism isolated in one case previously reported by Monserrat, in that they are not agglutinated by a serum specific for that organism. The facts that the present organisms were not affected equally by different antimeningococcic serums, and that with all of these serums except one rather low dilutions were necessary in order to produce reaction, lead Monserrat to the conclusion that probably his strains belong to the intermediate group often found in sporadic cases and generally spoken of as aberrant strains or parameningococci. These are more or less related serologically to the true meningococcus varieties, differing chiefly in their sugar reactions.

Surgery, Gynecology and Obstetrics, Chicago

June, 1922, **34**, No. 6

Reconstruction Surgery of Face. V. P. Blair, St. Louis.—p. 701.
*Granuloma Inguinale. A. Randall, J. C. Small and W. P. Belk, Philadelphia.—p. 717.
Hydatid Cysts of Pancreas. M. Albo, Montevideo, Uruguay.—p. 739.
*Icterus Index of Blood Serum. H. P. Maue, New York.—p. 752.
*Pathognomonic Sign of Intrauterine Death. A. B. Spalding, San Francisco.—p. 754.
Elephantiasis Treated by Kondoleon Operation. F. P. Herff, San Antonio, Tex.—p. 758.
Traumatic Orbitofacial Emphysema. G. G. Davis, Chicago.—p. 761.
*Experimental Pyloroplasty. G. H. Miller, Chicago; H. H. Bowing, Rochester, Minn., and L. L. Stepp, Pittsburgh.—p. 763.

*Experimental Reconstruction of Esophagus by Granulation Tubes. H. Neuhof and J. M. Ziegler, New York.—p. 767.
Total Removal of Scapula for Primary Giant-Cell Sarcoma. B. B. Davis, Omaha, Neb.—p. 776.
Streptococcus Scrotal and Penile Gangrene. M. F. Campbell, New York.—p. 780.
*Calculi Within Brain. E. A. Miller, Denver.—p. 786.
Uterine Hemorrhage of Endocrinopathic Origin. S. H. Geist, New York.—p. 790.
Corrective Rhinoplasty. L. Cohen, Baltimore.—p. 794.
Bone Surgery of Nose. W. W. Carter, New York.—p. 800.
*Secondary Perineal Repair. T. H. Cherry, New York.—p. 803.
New Metal Tube Splint for Fractures of Forearm. H. A. McKnight, Philadelphia.—p. 808.
Direct Stimulation of Peripheral Nerves. H. O. Feiss, Cleveland.—p. 810.
*Induction of Labor by Use of Castor Oil and Quinin. Report of Three Hundred Cases. A. C. Williamson, Pittsburgh.—p. 812.
Ulcers on Posterior Wall of Stomach and Duodenum. M. Behrend, Philadelphia.—p. 815.

Granuloma Inguinale.—Randall and his associates are convinced that granuloma inguinale, long considered a tropical disease, is endemic in the temperate zone of the United States. Its diagnosis is dependent on (1) the characteristic local lesion, (2) the marked predominance in the negro race, (3) and the finding of the specific organism originally described by Donovan. These organisms the authors have demonstrated in smears from granuloma lesions in twelve patients in a series of sixteen. In the other four instances laboratory examinations were not made. An encapsulated bacillus, which when stained from cultures, resembles this organism, has been isolated from three of the twelve patients studied culturally. This bacillus is a member of the *Bacillus mucosus-capsulatus* group. Abscesses with spontaneous rupture and ulcer formation have been produced in rabbits by subcutaneous inoculation. These heal spontaneously in from three to seven weeks and grossly cannot be regarded as granulomas although the walls of these abscesses on histologic examination present granulation tissue not to be differentiated from that of the granuloma lesions. Friedländer's bacillus forms similar lesions. A few experiments attempting to establish symbiotic relationships between the encapsulated bacilli from granuloma lesions and staphylococci, colon bacilli, and diphtheroids in experimental lesions have failed. Treatment with tartar emetic intravenously acts as a specific, and rapid healing may be expected with the prompt disappearance of the specific organism. No contraindication to the intravenous use of this drug up to doses as high as 0.1 gm. have been met.

Icterus Index of Blood Serum.—Muehlingradt recently described a method for determining bile pigments in the blood. Briefly, it consists of comparing blood plasma with a standard solution of potassium bichromate and diluting the plasma with physiologic solution of sodium chlorid until its color approaches that of the standard. The potassium bichromate solution (1:10,000) is approximately equivalent to the color of a nonicteric plasma. Maue has modified this method, using serum instead of plasma. The technic is as follows: A solution of potassium bichromate 1:10,000 is used as a standard. From 5 to 10 c.c. of blood are obtained, and the serum allowed to separate. The serum is compared in a colorimeter (Duboscq) with the standard bichromate solution. The standard may be set at 10, 15 or 20 mm. The icterus index is obtained by dividing the reading of the standard by the reading of the unknown. When the color of the serum is too dark, and cannot be compared with the standard solution, the serum is diluted with physiologic solution of sodium chlorid until its color approaches that of the standard. In 156 cases giving no clinical evidence of jaundice, the lowest value obtained was 1.6 (fracture of skull), while the highest was 12 (pernicious anemia), the average being 3.6. An icterus index varying between 2.5 and 6 may be considered as normal.

Pathognomonic Sign of Intra-Uterine Death.—From a study of fetal skulls with the roentgen ray in thirty-one cases of pregnancy Spalding has found that with live babies the fetal skulls appear normal, except for the effect of labor which produces an overlapping of the skull bones. In three cases of intra-uterine death, the roentgen ray showed the marked overlapping of the skull bones with distinct signs of shrinkage of the skull contents. From these facts Spalding believes it is justifiable to state that shrinkage of the skull contents with overlapping of the skull bones can be demonstrated with the roentgen ray, which gives a pathognomonic sign of intra-uterine death.

Experimental Pyloroplasty.—The Rammstedt operation, or so-called "partial pyloroplasty," according to Miller and his associates is, when conditions will permit, the most effective way of enlarging the pylorus. It has the advantage of being the simplest operation yet devised for this purpose and requires very little time under anesthesia. A plastic flap operation is unsatisfactory on account of requiring such extensive incisions into the lumen of the canal. It is also unsatisfactory on account of its tendency to retract and restore the divided pyloric sphincter.

Experimental Reconstruction of Esophagus.—A simple experimental method has been devised by Neuhof and Ziegler in which a granulation tube is employed for the reconstruction of the esophagus after its resection. A two-stage procedure is requirement. The desired portion of the esophagus being thoroughly isolated, gauze packings are placed beneath it, the ends coming out of the wound. The latter is left wide open. At the second stage, one week later, the isolated portion of the esophagus is elevated by the traction on the packings and is divided obliquely above and below. The packings and the segment of esophagus are then removed. A bed of granulation tissue is found to have formed beneath the packings. A soft rubber tube of the diameter of the esophagus is securely sutured to the upper and lower ends of the organ by stitches passed transversely. When the tube becomes loose it is removed if it has not already been discharged from the wound. A granulation tube forms with epithelial overgrowth from the esophageal ends beginning in one week and becoming extensive at the end of three weeks. The longest period of observation was seven months after operation. In this case the new-formed tube was well developed and completely lined by esophageal epithelium. A partial stenosis appeared soon after operation but was not progressive. The method is advocated as applicable for reconstruction of the esophagus after resection for cancer.

Calculi in Brain.—The case described by Miller differs markedly from those found in the literature in that the roentgenologic examination revealed shadows which had the appearance of stones or calculi within the brain substance and these were successfully removed at operation.

Secondary Perineal Repair.—The puborectalis muscles are the point of attack in Cherry's operation because, he asserts, the structures injured at the completion of the second stage of labor producing subsequent relaxed perineum and rectocele, are the pubococcygeus muscle bundles of the levatores ani, their fascial sheath (retrovesical and anal fascia), and the triangular ligament. In order properly to correct the disturbed anatomic relationship of the puborectalis to the rectum, it is necessary to approximate them with their fascial sheaths in the midline anterior to the rectum. To restore the vulva and vaginal support which depends on the triangular ligaments, it is necessary to shorten this structure and place it in close contact with the levator muscle and sheath. The operative technic described by Cherry fulfils these conditions in that it reestablishes the perineal structures in their anatomic relation.

Quinin and Castor Oil to Induce Labor.—Quinin and castor oil in inducing labor, Williamson states, are successful in approximately 50 per cent. of cases. Labor should be carefully watched, for occasionally there may be tetanic contractions. At the first sign of fetal or maternal distress, the operator should be ready to interfere. If there are signs of cinchonism, the quinin is to be stopped at once. The most favorable conditions for this type of induction are: When the estimated date is due or past, when the head is fixed or beginning to fix in the pelvis and when the uterus is irritable. The mechanism is due to irritation caused by the castor oil of the sympathetic centers, with increased peristalsis and a reinforcement of the rhythm and muscle tonus by the quinin acting directly on the uterine muscle bundles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 3, 1922, **1**, No. 3205

Dyspepsia and Conditions Underlying It. Dawson.—p. 863.
Effects of Chronic Starvation During Siege of Kut. P. Hehir.—p. 865.
*Cancer of Breast. Treatment of Proemial Breast. G. L. Cheatle.—p. 869.
Suture of Ruptured Left Dome of Diaphragm. C. J. Marshall.—p. 871.
*Unusual Cause of Death From Cancer. E. A. Linell.—p. 872.
Oral Sepsis in Its Relation to General Disease. J. M. Ackland.—p. 872.
Solubility of Quinin Hydrochlorid. J. H. Crawford.—p. 874.
Functional Amblyopia. J. A. Wilson.—p. 875.
Rupture of Varicose Veins Mimicking Accidental Hemorrhage. C. J. H. Aitken.—p. 875.
Knot in Umbilical Cord as Cause of Accidental Haemorrhage. A. F. G. Guinness.—p. 875.

Treatment of Proemial Breast.—No surgeon of experience can be satisfied with the results obtained by the present surgical treatment of cancer when it arises primarily in the breast. Cheatle directs attention to the existence of a potentially dangerous state of the breast, and indicates the advisability of removal of a breast in this state rather than wait for the evidence of disease for which surgical measures have been proved to be so unsatisfactory. The condition of the breast which is a prelude to those particular pathologic changes Cheatle terms the "proemial breast." The proemial breast is worthy of due recognition for two reasons: (1) It is in a state that makes it a prelude to further pathologic changes of a highly important character—mainly simple papilloma, malignant papilloma, and other forms of cancer. (2) Its clinical recognition and adequate treatment occasionally enables the surgeon to recognize (microscopically) the presence of one or more of these changes, before any clinical sign of their existence is obtainable by any other means—that is to say, when the proemial breast has merged into those profoundly important stages to which it has acted as a prelude. When once established the condition of the proemial breast is permanent. The symptoms are swollen, painful and tender nodules not of the same size in corresponding parts of the same gland. There may be an intermittent or continuous discharge of serum from the nipple. A thin layer of coagulated serum may be seen on the surface of the nipple. The discharge is always small in amount. In the later stages of this complaint the pain disappears and cysts are present in varying number. The proemial breast bears exactly the same relationship to cancer and papillomas of the breast as the proemial appendix does to general peritonitis. Cheatle's treatment of the proemial breast, in whatever stage it exists, is to remove it.

Unusual Cause of Death in Laryngeal Cancer.—Linell relates the case of a woman, aged 43, suffering from an inoperable carcinoma of the larynx, which had required tracheotomy to relieve urgent symptoms. She was comfortable until early in morning of the twenty-fifth day, when she awoke with severe pain over the precordium. The pulse became almost impalpable and the heart sounds were very weak, but there was no dilatation of the organ and no bruits could be heard. There were moist sounds at the base of the left lung. These were the only antemortem findings of note except for slight sepsis round the tracheotomy tube. The patient died the next day. The postmortem examination disclosed a left sided pleurisy; abscess of left lung ruptured into the pleural cavity; nodular secondary growths on the pericardium and the left pleura; deposits in the bronchial glands; and in the right auricle, a papillomatous mass the size of a pea was found projecting into the cavity from the smooth endothelial wall. Histologic examination of this growth showed the typical structure of squamous cell carcinoma. From the facts that it was infiltrating the subendothelial heart muscle and separating the muscle fibers it would appear that the embolus had arrived via the blood or lymphatic system, and that it was not an implant on the auricular endothelium from embolism down the superior vena cava.

China Medical Journal, Shanghai

March, 1922, **36**, No. 2

Epithelioma. F. L. Meleney.—p. 93.
Modern Treatment of Leprosy. H. Fowler.—p. 115.
Hospital Administration Council. H. Fowler.—p. 119.
Micro-Methods of Urine and Blood Analysis. H. Wu.—p. 121.
Case of Vesicovaginal Fistula Operated on by Kelly's Method. D. Landsborough.—p. 128.
*New Eruptive Fever in Infancy. E. Tso.—p. 130.
Studies in Diet of Korean People. J. D. Van Buskirk.—p. 136.
Rinderpest and Its Prevention. E. L. Bliss.—p. 153.
Normal Rate of Pulse in Cantonese Students. W. W. Cadbury.—p. 170.

Exanthem Subitum.—In 1921, Veeder and Hempelmann (THE JOURNAL, Dec. 3, 1921, p. 1787) described an unusual syndrome of febrile exanthem occurring in early childhood. Three similar cases have been met with in Peking by Tso. The disease is characterized by a period of high and continuous fever lasting from three to five days, the appearance of a macular or maculopapular rash soon before or after the termination of the fever, absence of physical signs, negative laboratory findings, a distinct leukopenia, lack of contagiousness and a universally good prognosis.

Indian Medical Gazette, Calcutta

May, 1922, **57**, No. 5

Measurement as Basis of Diagnosis of Furcocercous Cercariae. F. Milton.—p. 161.
Role of Vitamins in Tropical Diseases. J. A. Shorten.—p. 164.
Diary of Medical Inspector of Schools. A. Hamid.—p. 169.
Yaws in Malaya. A. Viswalingam.—p. 172.
Ether in Tropics: New Apparatus. A. Hooton.—p. 175.
Differential Blood Count. L. E. Napier.—p. 176.
Case of Hypernephroma of Kidney. G. Chand.—p. 179.
Difficult Obstetric Case After Ventrofixation of Uterus. L. W. Hefferman.—p. 179.
*Unusual Abdominal Tumor. L. W. Hefferman.—p. 180.

Abdominal Tumor.—Hefferman's patient was a medium built Chinaman, aged 22 years, a mine coolie, who complained of a sinus in the left iliac region. He had no pain, stools were normal, and appetite unimpaired. At operation the tumor proved to be a mass of adherent intestines and omentum. Hefferman wonders whether the condition was a chronic tuberculous peritonitis or a chronic dysenteric peritonitis.

Irish Journal of Medical Science, Dublin

April, 1922, **5**, No. 2

*Venous Thrombosis and Gastric Carcinoma. T. G. Moorhead.—p. 49.
Blood Sugars. C. E. Brunton.—p. 57.
Prognosis in Mental Disease. H. R. C. Rutherford.—p. 65.

Venous Thrombosis Sign of Malignant Disease.—Moorhead states that the diagnostic value of intravenous thrombosis as a sign of visceral malignant disease seems hardly to have attracted the attention that it deserves, or rather it appears that, while universally admitted to be a not unusual phenomenon in states of advanced cancerous cachexia, it is hardly realized that it may occur as a comparatively early symptom, or even as the earliest symptom of a latent carcinoma. Four cases are cited by Moorhead which bear out the value of this observation that there is a group of cases of latent cancer of the stomach with peripheral venous thrombosis as the earliest, and indeed only, prominent symptom throughout.

Journal of Tropical Medicine and Hygiene, London

May 15, 1922, **25**, No. 10

Report on Hookworm Disease in British Solomon Islands. N. Crichlow.—p. 123.
Pseudoleptospira Icterohemorrhagic. R. W. Mendelson.—p. 125.
Freshly Dissolved Tartar Emetic in Venereal Disease. F. G. Cawston.—p. 126.
Cancer of Liver in African Native. A. Y. Massey.—p. 127.

Lancet, London

June 3, 1922, **1**, No. 5153

*Lymphatics and Lymph Glands. P. T. Herring and F. G. Macnaughton.—p. 1081.
*Value of Pulse Charts in Acute Carditis in Childhood. R. Hutchison.—p. 1086.
*Agglutinins in Normal Serums for Some Micro-organisms of Para-typhoid Group. A. B. Rosher and H. A. Fielden.—p. 1088.
*Colloidal Benzoin Reaction in the Cerebrospinal Fluid. J. H. Dible.—p. 1090.

Cases of Interest to Anesthetist. W. B. Howell.—p. 1092.
*Significance of Discharge from Nipple in Breast Lesions. E. C. Lewis.—p. 1093.
*Case of Antrochoanal Polypus of Exceptional Size. G. W. Dawson.—p. 1095.
Postural Subsartorial Bursitis. R. Davies-Colley.—p. 1096.
Differential Diagnosis Between Cholelithiasis and Duodenal Ulcer. W. J. McKeand.—p. 1096.

Lymph Glands and Tuberculosis.—Observations made by Herring and Macnaughton support the validity of the doctrine spoken of as Cohnheim's law which states that the tubercle bacillus reveals the site of its entry into the body by setting up characteristic changes in the lymph glands which receive lymphatics from the area in which it enters. There is no evidence of a new formation of lymph glands in tuberculous conditions. Microscopic glands exist and become enlarged, but much of the tissue associated with tuberculous glands is merely tuberculous tissue which bears a superficial resemblance to lymph glands in whatever situation in the body it occurs.

Treatment of Carditis.—The treatment of carditis, Hutchison says, offers few opportunities for active intervention—rest and patience are chiefly required, and too active therapeutics may do more harm than good.

Agglutinins in Normal Serum for Paratyphoid Group.—Rosher and Fielden have found that among the general population a considerable proportion of individuals yield serum agglutinating *B. paratyphosus* C, *B. aertrycke* (Mutton), and *B. enteritidis* (Gaertner). Some evidence is brought to show that the agglutination of *B. aertrycke* and *B. paratyphosus* C is largely due to secondary agglutination from the paratyphosus B element of the triple vaccine, whereas *B. enteritidis* (Gaertner) seems to be coagglutinated both by the typhoid and paratyphoid B elements. If a diagnosis is to be made on a single agglutination reaction, the titer must be very considerably higher than 1:640 for these organisms. A titer of over 1:1,000 is suggestive of infection with the organisms concerned, and a titer of over 1:2,000 is strongly suggestive of the same conclusion, but in all cases it will be necessary, if an accurate diagnosis is to be arrived at, to perform repeated tests and to demonstrate fluctuation in the agglutinin content of the patient's serum which is now generally recognized as characteristic of infection with organisms of this group and which the studies of Dreyer and his associates have made it possible to follow accurately.

hitherton unobtainable.

Colloidal Benzoin Reaction of Normal Cerebrospinal Fluid.—From Dible's experiments it would appear that the negative reaction occurs with normal cerebrospinal fluid. The positive reaction indicates an alteration in the cerebrospinal fluid which is very probably syphilitic in nature. An ambiguous reaction indicates a pathologic condition in the cerebrospinal fluid, but does not indicate its exact nature.

Significance of Discharge from Nipple in Breast Lesions.—Among 251 cases of lesions of the breast reviewed by Lewis there were only 26 patients, all of them women, who gave a history of discharge from the nipple. In these 26 cases the lesions were as follows: spheroidal cell carcinoma, 9; chronic mastitis (cystic and noncystic), 6; duct carcinoma, 4; duct papilloma, 4; Paget's disease of the nipple, 1; abscess, 1; seborrheic dermatitis of the nipple, 1. In the case of spheroidal cell carcinomas, the total number of patients treated in ten years was 129, giving a percentage of about 7 with discharge. The percentage in chronic mastitis was 13.3, in duct carcinoma 36.3, and in duct papilloma 100. Of forty-four cases a history of discharge was given in 6—e. g., duct carcinoma, 1 (out of 4 specimens of this disease); spheroidal cell carcinoma, 3 (out of 18); chronic mastitis with multiple cysts, 1; malignant disease of the nipple, 1. In the single case of duct papilloma in the collection, in which the duct has dilated to the size of a small orange, the presence or absence of discharge is not mentioned in the history. In each case in which discharge was present the lesion lay immediately beneath the nipple. In all the malignant cases, except one, the patient had noticed the presence of a swelling in the breast for some time previous to the appearance of the discharge. Therefore, discharge from the nipple is not in itself a definite expression of malignancy and should not be treated as such unless the suspicion is strengthened by the rest of the history and clinical picture.

Large Antrochoanal Polyp.—The polyp in Dawson's case weighed 9.5 drams and filled the nasopharynx, bulging the soft palate forward. Respiration or deglutition was impeded. Beyond the peculiar muffled speech, and the occurrence of fits of suffocation should he happen to turn on his back during sleep, there were no symptoms.

Medical Journal of Australia, Sydney

April 22, 1922, **1**, No. 16
*Theory of Cancer. T. Cherry.—p. 425.
Ureteric Calculi and Phleboliths. R. Bridge.—p. 439.

Theory of Cause of Cancer.—Cherry is of the opinion that overnutrition and lessened muscular activity are factors in the increase in cancer morbidity and mortality. He speaks of activators and proliferins. More muscular work at all ages after 40, less elaboration in the manufacture of cereal foods and the attainment of conditions which insure greater activity of the skin, are suggested as prophylactic measures.

April 29, 1922, **1**, No. 17
Work of Massachusetts-Halifax Health Commission. B. F. Royer.—p. 451.
Possibilities of Irradiation in Malignant Disease. L. J. Clendinnen.—p. 456.
*Causation of Cancer. W. J. Penfold.—p. 460.
Bilateral Primary Solid Ovarian Carcinoma. W. T. Chenhall.—p. 463.

Causation of Cancer.—Penfold takes exception to Cherry's postulation of a "proliferin" and an "activator." It seems likely to him that the selecting agent or agents may be a product of defective metabolism, which product accumulates within the body. He suggests that all the known intermediate bodies which arise within the body in the metabolism of the proteins, purins, carbohydrates and fats should be tested in turn for the discovery of selective power.

May 6, 1922, **1**, No. 18
Education Number.
May 13, 1922, **1**, No. 19
*Importance of Uterosacral Ligaments in Uterine Prolapse. C. A. Thelander.—p. 511.
*Tumors of Brain: Pathology and Treatment. H. R. Dew.—p. 515.
Schaefer Method of Artificial Respiration. T. S. Dixson.—p. 521.
Acute Poliomyelitis. M. O'Sullivan and J. G. Sleeman.—p. 523.

Restoration of Uterosacral Ligaments for Prolapse.—Thelander believes that restoration of the uterosacral ligaments approximates closer to a physiologic condition than any other operation for prolapse. After restoration of these ligaments the stress of normal labor may be withstood without recurrence of prolapse. Plication of the ligament gives better results than parietal reattachment. The operation can easily be supplemented by one of the round ligament suspensions, if thought necessary. Where uterosacral support is adequate, no other operation is necessary.

Tumors of Brain.—Among the eighty-five cases analyzed by Dew were 30 gliomas, 6 endotheliomas, 1 sarcoma, 4 secondary tumors, 2 simple cysts, 2 papillary cancers, 4 gummas, 1 tuberculoma, 1 adenocarcinoma and 5 hydatids. Headache was the commonest symptoms; mental changes were noted in fifteen patients. Aphasia was noted in five. Convulsions were noted in twelve patients and as initial symptoms in eight. Ataxia was noted in connection with three frontal tumors. Optic neuritis was present in forty-six. Nystagmus was present in sixteen patients suffering from cerebellar tumor. In reviewing the facts as put forward, the diagnosis and treatment are disappointing when compared. Too often surgical intervention was delayed too long because of delay in diagnosis. With the fuller adoption of the newer aids to diagnosis, there is no doubt that few of the subtentorial tumors will escape detection and more of the others will be correctly localized.

Medical Journal of South Africa, Johannesburg

April, 1922, **17**, No. 9
Problem of Ventilation on Witwatersrand. E. H. Cluver.—p. 174.
Case of Melano-Epithelioma of Palate and Alveolar Arch. J. C. G. Macnab.—p. 185.
Ocular Tuberculosis: Two Cases. E. B. Israel.—p. 186.

Practitioner, London

May, 1922, **108**, No. 5

Chronic Intestinal Stasis. W. A. Lane.—p. 305.
Enucleation of Tonsil Under Local Anesthesia. D. McKenzie.—p. 314.
*Diathermy in Malignant Disease of Mouth and Fauces. W. J. Harrison.—p. 321.
*Diathermy in Treatment of Malignant Disease. F. J. Steward.—p. 328.
Some Common Disabilities of Foot in General Practice. G. P. Mills.—p. 335.
*Painful Heel. W. F. Stiell.—p. 345.
*Method of Using Tuberculin. R. Robertson.—p. 354.
Drug Therapeutics: Suggested Principle and New Drug (T. N. T.). W. E. Boyd.—p. 362.
Erysipelas and Streptococcal Septicemia. A. Erian.—p. 373.

Diathermy in Malignant Disease of Mouth.—In faucial growths, the ease with which diathermy can be employed, the lack of hemorrhage, preliminary tracheotomy, splitting of the cheek or other operation, Harrison says, makes it very much more satisfactory and safer than a cutting operation. Unfortunately, growths in this situation are often only passed over to the surgeon, who uses diathermy when they are inoperable by the knife, but in spite of this many patients have remained free from recurrence two, three or more years after the operation, and many others have had their lives prolonged, and their symptoms greatly relieved for shorter periods. Harrison is certain that if earlier cases in this situation were operated on by this method, the results would be more satisfactory than in cutting operations.

Diathermy in Malignant Disease.—In order to treat a case of malignant disease satisfactorily by diathermy, Steward says, two conditions are essential apart from the provision of an efficient apparatus. These two essentials are good illumination and complete exposure. If, for instance, the growth is situated within the mouth, a good headlight is necessary, and by means of gage, retractors, sutures through the tongue, and if necessary splitting the cheek, the whole of the affected area must be brought into plain view, for no good can be expected to result from working in the dark. Treatment by diathermy is capable of wide application; it is, for instance, available for many cases of malignant disease involving the tongue, the floor of the mouth, the fauces, the palate, certain parts of the pharynx, the vulva, and vagina. Of growths of the skin, although the majority are better excised with the knife, rodent ulcers are particularly suitable for treatment by diathermy.

Painful Heel.—By far the most prevalent type of painful heel, Stiell states, is the condition known as "bruised heel." The second most frequent cause of pain in the heel is a true Achillo-bursitis, which is an inflammatory condition in the bursa between the Achilles tendon and the posterior surface for the tuberosity of the os calcis. This condition is usually produced either by continued trauma from an ill-fitting boot or shoe, or is a local manifestation of generalized rheumatic or gouty bursitis. Another prevalent cause of acute pain of sudden onset around the heel is a true tenosynovitis of the Achilles tendon. This condition is known by the name of achillitis, and is practically always traumatic in origin. It is sometimes known as sprinter's heel, but is equally prevalent among sportsmen in general. Another cause is tuberculous osteomyelitis, although it is only in the later stages of this condition that pain becomes a prominent symptom. A gonococcal inflammation of the plantar fascia is an infrequent cause of pain in the anterior portion of the ball of the heel. Calcanean spur is a comparatively rare cause of heel pain.

How to Use Tuberculin.—Robertson uses a mixed bovine and human tuberculin, beginning with an initial dose of $\frac{1}{10,000}$ mg., future treatment being based on the reaction.

South African Medical Record, Cape Town

May 13, 1922, **20**, No. 9

Remote Surgical Conditions following Childbirth. H. E. Allanson.—p. 192.

Tubercle, London

May, 1922, **3**, No. 8

Effects of Tuberculin. P. M. Holst.—p. 337.
Vital Capacity in Pulmonary Tuberculosis. C. Cameron.—p. 353.

June, 1922, **3**, No. 9

*Vital Capacity in Pulmonary Tuberculosis. C. Cameron.—p. 385.
*Relationship of Tuberculosis and Injury. N. Tattersall.—p. 400.
Severe Emphysema Complicating an Artificial Pneumothorax. A. Aronson.—p. 403.

Vital Capacity in Pulmonary Tuberculosis.—The estimation of the vital capacity by a suitable spirometer, Cameron states, is a simple clinical test, which even in pulmonary tuberculosis is attended by the minimum of ill effects. No ill effects were observed in the course of 6,000 observations. The vital capacity is always reduced in pulmonary tuberculosis, a fact of considerable significance in the diagnosis of doubtful cases. It should, however, be borne in mind that other lung diseases than tuberculosis may effect a reduction. The vital capacity, with certain reservations, is reduced in proportion to the grade of the disease. There are grounds for considering that two elements are concerned in his reduction: (*a*) the element of toxemia; (*b*) the element of pathologic structual tissue change. In the early case the probability is that the toxic element is the main factor in causing reduction. In the more advanced case both elements play their parts. The significance of the reduction can only be interpreted in association with the results of careful clinical examination. The vital capacity in pulmonary tuberculosis varies according to the state of the patient, increasing when improvement takes place, and decreasing during periods of physical retrogression. An increase of vital capacity is, in this respect, per se, an absolutely reliable guide to the progress of the patient. A stationary, or slightly decreasing, vital capacity, usually denotes an unsatisfactory pulmonary condition; but in such cases the vital capacity must be considered in association with the clinical findings, and other possible causes of diminution eliminated. Advancing disease is always associated with diminishing vital capacity; but diminishing vital capacity need not necessarily indicate advancing disease. The vital capacity is of restricted value in estimating the work capacity of the victims of pulmonary tuberculosis. Excessive vital capacity diminution is not compatible with work capacity; but the more moderate grades of diminution bear no definite relation to work capacity. The upsetting factors here are the varying parts played by the anatomic and toxic elements in the reduction of vital capacity. The fairly advanced, but temporarily quiescent type of case, may have a vital capacity considerably reduced by causes which are largely anatomic, and yet have within limits a good work capacity. The moderately early case in which anatomic change is slight, but disease is active, and toxic manifestations controllable only by comparative rest, may have a much higher relative vital capacity, and yet be quite unfit for any grade of work.

Relationship of Tuberculosis and Injury.—To correlate injury and tuberculosis, Tattersall says, the symptoms must appear promptly (within a few days or weeks) after the injury. The lighting up of an existing focus is infinitely more frequent than subsequent implantation in damaged but healthy lung. Foci in the mediastinal glands play a more important part in these cases than has generally been supposed.

Annales de Médecine, Paris

April, 1922, **11**, No. 4

*Renal Diabetes. M. Labbé.—p. 273.
*Auto-Observation of Epidemic Encephalitis. P. Cantaloube.—p. 285.
*Splenopneumonia. A. Pellé.—p. 300.
Spontaneous Aneurysm Involving Aorta and Vena Cava. J. Chalier and F. Barret.—p. 306.
*Curable Tuberculosis in Infants. R. Debré and P. Joannon.—p. 320.
*Mercuric Chlorid Poisoning. G. Guillain and C. Gardin.—p. 338.

Renal Diabetes.—Labbé reports a case of renal diabetes under observation from the age of 6 to 18. The general condition has always been good notwithstanding this permanent, excessive permeability of the kidneys for glucose. The elimination of sugar at times amounted to 44 gm. It was scarcely affected by the diet, but there was a slight orthostatic tendency, and there was also orthostatic albuminuria. Intravenous injection of calcium chlorid seems to reduce the permeability of the kidneys for glucose. He treated this patient by this means, and when last seen she was eliminat-

ing only 0.25 gm. of glucose and 0.04 gm. of albumin in the twenty-four hours.

Auto-Observation of Epidemic Encephalitis.—Cantaloube presented intense oxaluria and crossed trigeminus-facialis paralysis, besides the usual kaleidoscopic clinical picture of grave epidemic neuraxitis. He was not able to resume his practice until October, 1921, just before the close of the second year. He appears to have recovered completely, and now weighs 2 kg. more than he ever weighed before. He was confined to bed for over three months in the whole course of the disease. He declares that no medication displayed any efficacy. No attempt was made to induce a fixation abscess, and he did not try hexamethylenamin, but almost the entire therapeutic resources otherwise were tried and abandoned, from ergot to sulphur, with organotherapy, and large doses of tincture of iodin. No action was apparent from any of them except possibly from calcium chlorid, lead acetate and phosphoric acid. Tobacco was the only substance that displayed any decisive action, and this was in the line of aggravation of the symptoms. The disease is described from the standpoint of the medical victim; the peculiar instability of the arterial tonus is emphasized, and the visual, auditory and meningeal reactions and intense pains in joints.

Pneumonia with Splenization of the Lung.—In Pellé's 7 cases of splenopneumonia, the condition had been mistaken for a subphrenic abscess in 2 cases, and on this basis a useless operation had been applied. In 3 cases the patients were being treated for supposed active pulmonary tuberculosis. In the 2 other cases pleurisy had been diagnosed. The trend toward recovery in two or three months, with retrogression of the roentgen-ray findings and negative bacteriologic examinations, confirms the diagnosis of the comparatively harmless splenopneumonia.

The Florid Form of Tuberculosis in Infants.—In the eight cases described the children had the aspect of health, and they have developed normally. The only signs of their infection are a positive tuberculin skin reaction and one or more enlarged glands in the chest. The source of infection was not very virulent, and the contact had been brief. This florid form represented 15 per cent. of tuberculous infants examined. If superinfection can be warded off, these children have every prospect of keeping their tuberculous focus latent or healing it completely.

Mercuric Chlorid Poisoning.—Guillain and Gardin illustrate with a clinical case the vicious circle that is set up by mercuric chlorid. The acute nephritis which it induces causes retention of nitrogen, and this entails an acute toxic action from which the heart suffers, so that the danger really is from the heart. Treatment should aim to sustain the heart as the vital indication. By thus reenforcing the heart we can tide the patient along until diuresis sets in—which is usually about the fifth day. This clears out the waste products, and the primordial danger, the nitrogen poisoning, is thus averted. In their case mercury was refound in the spinal fluid, but the fluid was scanty, suggesting an action on the choroid plexus like that on the kidneys responsible for the anuria. The production of bile did not seem to suffer. Some cases with a favorable outcome are cited; in three weeks the patients were out of danger.

Bulletin de l'Académie de Médecine, Paris

May 16, 1922, **87**, No. 20

*Fracture of Neck of Femur. P. Delbet.—p. 533.
Epidemic Herpes Zoster Alternating with Chickenpox. Netter.—p. 535.
Is Rat Leprosy Transmissible to Man? E. Marchoux.—p. 545.
*Prophylaxis of Diphtheria. J. Renault and P. P. Lévy.—p. 547.

Apparatus for Screw Treatment of Fracture of Neck of Femur.—Four illustrations show the details of Contremoulins' device with which it is possible to drive a screw or peg axially through the neck into the exact center of the head of the femur.

Prophylaxis of Diphtheria.—Renault and Lévy think they have improved on the Park and Zingher method by their practice of mixing the toxin and antitoxin only as the mixture is to be injected. They also use a mixture which is neutralized to excess. This strong hyperneutralization protects against all possible dangers. Out of the total thirty-two children thus treated the results were recorded in twenty-eight over several months. There seems to be a passive immunization during the first two weeks. Then this subsides and active immunization becomes installed, between the second and fourth months, in about 50 per cent. By the fourth to the sixth month nearly all have acquired it.

Bulletin Médical, Paris

May 13, 1922, **36**, No. 20

*Meningococcus Septicemia. J. Reilly.—p. 379.
*Recurring Mental Disturbance in Degenerates. R. Benon.—p. 383.
*Glycosuria in Gout. C. Finck.—p. 385.

Meningococcus Septicemia.—Reilly's experience confirms that any of the types of meningococci are liable to induce septicemia. The micro-organisms may lurk in tissues adjoining the meninges, and sally forth at times from these *gites paraméningés* to invade the cerebrospinal fluid or the general blood stream. The paradoxic fact has been noted that meningococci from these parameningeal lurking places, passing into the blood stream, are refractory to general serotherapy but yield to intraspinal treatment. Meningococci passing only secondarily to invade the meninges are more susceptible to general serotherapy. The combination of intraspinal and intravenous serotherapy represents great progress.

Recurring Mental Disturbance in Degenerates.—Benon warns to be on the lookout for this *délire des dégénérés* in subjects between 18 and 30 presenting sudden asthenia and tendency to melancholia. In a case described, the two attacks with depression in the young man were most certainly not neurasthenia, dementia praecox or a periodical psychosis. The attacks developed after emotional stress, the asthenia, without known physical cause, becoming pronounced in a few hours, with illusions, hallucinations, headache, cold sweats and tendency to suicide.

Glycosuria in Gout.—Finck has noticed a kind of balance between the excretion of uric acid and of sugar in gout. As one increases the other drops, but fully 20 per cent. of all his gouty patients developed glycosuria, and it progressed to actual diabetes in about 10 per cent. The retention of uric acid was most pronounced the days of the highest glycosuria, and vice versa. The retention of uric acid was manifestly favored by hypo-alkalinity of the body fluids. Restriction of meat and treatment as for gout in general improved conditions as to both uric acid and sugar. He gives the details of eight cases long under observation, out of a total of thirty-three cases of glycosuria in the intervals between attacks of gout. It was a mild, intermittent glycosuria, gradually becoming continuous, but without polydipsia or polyuria. Meat usually aggravated the glycosuria.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 5, 1922, **46**, No. 15

Technic for Intratracheal Injections. Oudard.—p. 716.
Murmur in Dilated Veins in Abdominal Wall. Huber et al.—p. 718.
*Cardiovascular Action of Pepsin. Loeper and Mougeot.—p. 721.
Action of Pepsin on Motor Function of Large Intestine. Loeper and Baumann.—p. 726.
*Descending Rhinobronchitis. A. Florand and H. Flurin.—p. 729.
*Anaphylaxis from External Applications. Gougerot and Blamoutier.—p. 733.
Professional Dermatitis. Gougerot and Blamoutier.—p. 739.
Bullet Borne in Heart Muscle for Over Two Years. H. Tecon.—p. 743.
*Cardiovascular Thrombosis. P. Emile-Weil and Isch-Wall.—p. 748.
*Distribution of Leukocytes in Scarlet Fever. T. Mironesco and A. Codreano.—p. 752.

Pepsin Reduces the Blood Pressure.—The experimental and clinical research described suggests that the resorption of pepsin during digestion may have something to do with the circulatory disturbances in dyspepsia, by its action on the vagus. The blood pressure under its influence drops in cases of high tension, and this effect lasts longer than in normal subjects. The subcutaneous injection of from 20 to 40 cg. of pepsin may therefore be advised, Loeper and Mougeot say, as a regular treatment of hypertension, especially paroxysmal hypertension. The drop averages 2 cm. mercury

in the normal, and with high blood pressure may amount to 4.5 cm. The effect was evident in five minutes, and the pressure did not begin to rise again for a whole hour. There were no subjective disturbances, and the heart rhythm was not affected, while the effect on the blood pressure was as pronounced as with the best pressure reducers known, even the nitrites.

Emphysema of the Lung.—A descending rhinobronchitis entails chronic coughing, and the breathing through the nose is defective. The consequence is a debility of the connective and elastic tissue of the lungs; the alveoli become abnormal, and thus conditions are ripe for the mechanical strain from the cough to start emphysema.

Anaphylaxis from External Applications.—Two cases are reported in which cade oil applied to the skin induced local and vascular reactions indicating pronounced anaphylaxis. Desensitization was realized in the course of one month by local application of minute and progressive amounts of the same oil. These cases warn to seek for anaphylaxis and the hemoclastic crisis in skin diseases, and try to desensitize through the epidermis. In the following article, Gougerot and Blamoutier report an occupational anaphylaxis eczema from working on ebony wood. The man was desensitized with an alcoholic extract of sawdust from the same wood. The anaphylaxis in this case had been two years in developing, and the desensitization was realized in eleven days.

Cardiovascular Thrombosis.—The woman of 32 presented febrile asystolia and purpura, with severe hemoptysis, and necropsy revealed both auricles filled with clots, partly adherent.

Distribution of Leukocytes in Scarlet Fever.—Mironesco found in nine cases of scarlet fever and five of other diseases that in scarlet fever the proportion of leukocytes in the capillaries is much larger than in the veins. He theorizes to explain this as a defensive reaction.

Encéphale, Paris

May, 1922, **17**, No. 5

*Localization in the Cerebellum. André-Thomas.—p. 257. Cont'd.
*The States of Mental Derangement. M. Mignard.—p. 266.
The Rôle of "Complexes" in Morbid Manifestations in the Insane. E. Minkowski.—p. 275. Conc'n.
Tuberose Sclerosis of the Brain and Hydrocephalus in Relation to Early Puberty. K. H. Krabbe.—p. 281. Cont'd.
Psychic Disturbances in Tabes. C. I. Urechia.—p. 289.
Melancholia with Melanoderma of Exposed Parts. H. Damaye.—p. 293.

Topography of the Cerebellum.—This profusely illustrated article describes research on dogs and monkeys, a continuation of similar work before the war. Lesions experimentally induced were compared with the motor functioning thereafter, and with the necropsy findings.

Interaction of Organic and Mental Disturbances.—Mignard discusses what he calls the *emprise organopsychique* in conditions of mental derangement. The diseased organism is no longer able to serve properly the controlling mind. He regards this morbid interaction of mental modifications and neuroreflex functions as the capital fact dominating psychopathology.

Gynécologie et Obstétrique, Paris

May, 1922, **5**, No. 5

*Cesarean Section. F. Magalhães (Rio de Janeiro).—p. 345.
*Pathogenesis of Myomas. A. Reaner.—p. 358.
The Sugar Content of the Blood During Pregnancy and After Delivery. Boutet et al.—p. 364.
The Hemoclastic Reaction in the Pregnant. M. Didier.—p. 366.
Polypiform Edema of Uterine Cervix at Term. Rouvier.—p. 374.
Conical Resection of Uterine Cervix. E. Douay.—p. 377.

Artificial Extraperitoneal Cesarean Section.—Magalhães applies this term to abdominal cesarean section when the exposed uterus is covered with two overlapping sheets of dental rubber dam (1 x 0.5) which are held in place by a rubber band slipped over the uterus, as he shows in an illustration. This rubber tissue fits over the uterus and is packed into the abdomen around, thus completely isolating the uterus from the abdominal cavity. The overlapping edges of the two sheets on top of the uterus are drawn apart and the uterus is incised between them. The evacuation of the uterus thus proceeds without the slightest danger of contamination of the peritoneum. Confident in the outcome, he has applied this technic in 148 cases, and the total mortality of the mothers was 7.8 per cent. although six of the eleven women who died had high fever and extensive ruptures of vagina and cervix from long and vain efforts to deliver by the normal route before they had been brought to the Maternity. He does not know of any other obstetrician with such a record. The postoperative course in his 148 cases was febrile in thirty-eight, but twenty-six had a temperature of over 39 C. before the intervention; thirty-four, between 38 and 39 C., and thirty-eight had between normal and 38 C. In thirteen cases of permanent contraction of Bandl's ring, all the women were saved but one severely injured by preceding obstetric procedures.

Pathogenesis of Myomas.—In 455 myomatous young women examined, 39 per cent., were of the type of Stiller's congenital muscular asthenia and 5.2 per cent. of the type of hypertrophy of the muscular apparatus.

Journal de Radiologie, Paris

May, 1922, **6**, No. 5

Congenital Pseudarthrosis of Clavicles. A. Mouchet and P. Errard.—p. 212.
The Os Trigonum. A. Laquerrière.—p. 218.
Injections of Radium Emanation in Olive Oil. A. Jentzer.—p. 222.
The Pneumoperitoneum. Morel Kahn.—p. 224.
Radiotherapy of Opacity of the Cornea. Gilbert and Hairi.—p. 227.
Portable Radiographic Apparatus. J. Loubier.—p. 230.

Progrès Médical, Paris

May 27, 1922, **37**, No. 21

Exophthalmic Goiter Syndrome. C. Achard.—p. 241.
Exostosis of Upper Tibia. A. Broca.—p. 245.
Contraction of the Uterus During Labor. H. Vignes.—p. 245.

June 3, 1922, **37**, No. 22

*Dosage of Pepsin in Gastric Juice. M. Loeper and J. Baumann.—p. 253.
Bronchiectasis. L. Ramond.—p. 257.

Dosage of Pepsin in Gastric Juice.—Loeper and Baumann remark that the pepsin in the gastric juice does not seem to interest clinicians, who do not seek to estimate it systematically. The proportion of hydrochloric acid seems to have greater influence on the digestion of albumin. Under normal conditions the amount of pepsin is higher with bread than with meat, sugar or milk. Bread induces a stronger peptic and a weaker hydrochloric acid secretion than meat. Variations are slight in the healthy, but they have a wide range in disease. In cancer hypopepsia is the rule. In gastritis and dyspepsia the peptic activity is extremely variable, but has no connection with the symptoms or evolution of the disease. Dissociation of the hydrochloric acid and pepsin is often found in pathologic and normal conditions.

Riforma Medica, Naples

May 15, 1922, **38**, No. 20

Opening Lecture of Surgical Course. M. Donati.—p. 457.
*Blood Pressure in Exophthalmic Goiter. R. Falconcini.—p. 465.
Saline-Iodin Waters in Treatment of Catarrhal Urethritis, etc. G. Pini.—p. 466.
*Transmission of Syphilis by a Bite. G. Martini.—p. 467.
Social Aspects of Laryngeal Tuberculosis. G. Gradenigo.—p. 467.
Epidemic Singultus. T. Silvestri.—p. 468.

Exophthalmic Goiter.—Falconcini found the blood pressure high in all his twelve cases of exophthalmic goiter, but the proportions between the systolic and diastolic pressure seemed to indicate a diastolic hypotension, masked by the tachycardia. The pulse was apparently normal except for its catacrotism, and the instability evident in changes of position and under emotions. In only four of his six cases of well defined exophthalmic goiter was the heart of the shape and size known as goiter heart, and in none of the cases of the incomplete type.

Syphilis Contracted from a Bite.—Martini relates that a sister of 16 tried to separate her two older brothers who were fighting, and in the mêlée she was bitten on the hand by one of the brothers, who had also bitten the nose of his brother. The sixteenth and twentieth days after the affair

the girl and the brother developed syphilitic lesions at the points bitten, and both progressed to the specific rash, notwithstanding prompt arsenical treatment. The biter had been under treatment with neo-arsphenamin for several months at the time.

Archivos Latino-Amer. de Pediatría, Buenos Aires

April, 1922, **16**, No. 4

Case of Recurring Limp Chorea. Mamerto Acuña and Vallino.—p. 241.
Artificial Feeding of the New-Born. E. Davidsohn.—p. 247.
Protection of Infants of Wetnurses. Maria Armand Ugón.—p. 265.
Skim Milk for Sick Infants. J. A. Bauzá.—p. 274. Cont'd.
*Prurigo in Inherited Syphilis. M. A. Guerrero.—p. 284.
*Purpura in Pneumococcus Infection. F. Bazán.—p. 290.
Appendicitis Simulating Kidney Tumor. F. Rodriguez Gómez.—p. 300.
*Incomplete Form of Scurvy in Children. L. Wimmer.—p. 304.
*Familial Ichthyosis. M. Valabrega.—p. 312.

Hebra's Prurigo in Inherited Syphilis.—Guerrero reports two cases in children of 3½ and 6, cured by specific treatment for the inherited syphilis. The prurigo in both had been refractory to all kinds of local measures for months and years, and even to vaccine therapy, but it subsided in a few days under mercurial treatment. The clue in one case was first given by evidences of inherited syphilis in another child in the family. The cure has been complete during the year to date.

Purpura in Pneumococcus Infection.—Bazán reports two cases in which purpura developed in infants with pneumococci in the blood. He summarizes further seven similar cases from the records. All were fatal.

Incomplete Form of Scurvy.—Wimmer refers to a condition with punctate petechial hemorrhages which he has observed in a number of improperly fed young infants. He ascribes it to abortive scurvy rather than to purpura. As the food is corrected, the condition returns to normal. Its rapid development and equally rapid subsidence confirm this assumption of its nature.

Familial Ichthyosis.—In the family tree reproduced by Valabrega, there are four men and three boys with ichthyosis in three generations. He gives illustrations of two of the children.

Semana Médica, Buenos Aires

April 20, 1922, **1**, No. 16

*Colectomy for Chronic Fecal Stasis. P. Barbieri.—p. 617.
Mutation of Anthrax Bacillus. A. C. Marchisotti.—p. 622.
*The Inheritance of Syphilis. J. Palacio and A. Moral.—p. 624.
Improved Technic for Gastro-Enterostomy. R. Rodriguez Villegas.—p. 641.
Classification of Purpura. L. K. Wimmer.—p. 643.

Colectomy for Chronic Stasis.—The woman of 58 had a movable right kidney, and her symptoms had long been ascribed to this, but they all subsided after the portion of the colon that had been bound down by the membranes had been resected. The membranes themselves had been resected at an operation five months before, but the intestine had been too much deformed to recuperate. There was no shock from the extensive colectomy.

The Inheritance of Syphilis.—Palacio and Moral ascribe the transmission of syphilis exclusively to the mother. The father transmits it only through the mother, and affects the child only through the dystrophia of the spermatozoa. When the mother is infected, the child is always infected, and vice versa. Latent tertiary syphilis in both parents induces dystrophia of the reproductive elements, but the disease is liable to flare up under the influence of gestation, in which case the child is liable to have congenital infection as well.

Archiv für klinische Chirurgie, Berlin

May 13, 1922, **119**, No. 4

*Resection of Large Intestine. W. Hartert.—p. 643.
*Diagnosis of Noncarcinomatous Gastric Tumors. C. Dessecker.—p. 695.
*Peptic Jejunal Ulcer. H. v. Haberer.—p. 712.
*Regeneration of Bone Marrow in Pernicious Anemia. Walterhöfer and Schramm.—p. 766.
*Injection of Antiseptics into Joints. G. Axhausen and L. Frosch.—p. 774.
*Diagnosis of Traumatic Injury of the Spine. C. Göcke.—p. 787.
*Operations on Posterior Cranial Fossae. W. Mintz.—p. 825.
*Hour-Glass Tumors of Spine. N. Guleke.—p. 833.
*Atresia of Rectum and Anus. W. Oppel.—p. 845.
Tube for Indirect Transfusion of Blood. H. F. O. Haberland.—p. 849.
"Mouse Cancers"; Correction. Lubarsch.—p. 852.

Resection of Large Intestine.—From the experiences at the time and later in 43 operative cases of cancer of the large intestine, Hartert has been impressed with the absolute necessity for preventing any soiling of the tissues with fecal matter at any stage of the operation or operations. With end-to-end suture, moderate invagination of the afferent in the efferent stump materially strengthens the suture. The relative stenosis entailed is transient. In Körte's compilation in 1913 of 434 radical operations for cancer of the large intestine, 61.3 per cent. survived the operation and 38.3 per cent. of the survivors were free from recurrence for over three years; that is, 23.5 per cent. of the total 434 patients were cured for three years at least. The corresponding figures in Hartert's group of 28 surviving, of his 42 cases in Perthes' service, show that 39.1 per cent. of the 23 traced to date are still free from recurrence for three up to ten years. There were no operative fatalities in the 14 cases in which the resection occurred without soiling with feces, either at the main operation or the succeeding ones. To insure asepsis in making a fecal fistula he sutures the serous membrane of the bowel to the edges of the incision in the skin with as much care as for an intraperitoneal suture of the bowel. He also covers the suture with a paste and introduces a fistula apron of impermeable tissue, the edges sutured tight to the bowel serosa. He refrains from suturing the bowel to the parietal peritoneum, fearing further manipulations. He prefers a jet of steam for sterilization of the intestine content, but warns against the excessive use of this or of antiseptics. Resection at one sitting is preferable for cancer of the large intestine, not only when there are no complications but also when there is ileus, so long as peristalsis is vigorous. Several pages of bibliography are given.

Noncarcinomatous Gastric Tumors.—Dessecker advocates pneumoperitoneum as a last resource in the differential diagnosis of a nonmalignant tumor on the outside or inside of the stomach. Tumors in the stomach wall and solitary polyps are beyond our differentiating skill. An exogastric tumor is liable to pull the stomach out of shape. The funnel-like protrusion of the stomach wall into the pedicle of the tumor is characteristic, as also the smooth outline of the endogastric growths and their movability on palpation, during radioscopy, with the stomach of normal shape. He illustrates a case in which a segment of the stomach was resected containing a fibroma as large as a hen's egg, with ulceration at three points. The few cases on record of myoma, fibroma, solitary polyps, etc., are compared with this case, and he adds that there are about 200 cases of primary gastric sarcoma known. He cites 3 cases in which the sarcoma had developed on the exterior of the stomach.

Peptic Jejunal Ulcer.—Haberer's experience condemns exclusion pyloroplasty as inviting peptic ulcer, although the latter may follow gastro-enterostomy alone. The first Billroth method seems the safest for operative treatment of the stomach, from this and other standpoints. The diet must be strictly regulated after any operation on the stomach; he does not allow solid food for two weeks. A peptic ulcer may recur; in operating for this, the resection should be on the same principle as the first Billroth method. He gives the details of 26 cases of peptic jejunal ulcer treated by radical resection. In 2 cases the ulcer was a recurrence. The primary lesion had been in the duodenum in 23 cases and in the pylorus in 8. Pyloroplasty had been done in 18 of the total cases; in the others, intervention had been restricted to posterior gastro-enterostomy. A jejunal peptic ulcer never was observed after any of his own 865 cases of resection of stomach or duodenum, but there were 12 instances of it in his 71 cases with exclusion of the pylorus, and in 3 of his 275 gastro-enterostomy cases.

Regeneration of Bone Marrow in Pernicious Anemia.—Walterhöfer and Schramm reported a few months ago the favorable influence on the course of pernicious anemia observed when part of the marrow of one tibia or femur was

scooped out. Four of the nine patients thus treated have died since, and they here describe the regeneration of the marrow observed in these four fatal cases. Death had occurred from secondary infection in two. The regeneration process seemed to correspond to what is observed experimentally in healthy dogs, only that it occurs more slowly, probably on account of the age. There does not seem to be any anatomic insufficiency of the bone marrow in pernicious anemia. The favorable influence from the operation is evidently due to the stimulation of the bone marrow therefrom, and the perpetuation of this stimulation by the regeneration.

Injection of Antiseptics into Joints.—The experiments on fifty rabbits warn against prophylactic injection of strong antiseptics into joints.

Traumatic Spinal Affections.—Göcke reviews the ultimate outcome in fifty-five cases of injury of the spine, with or without nervous symptoms. This experience has convinced him that Schanz' insufficientia vertebrae is based on mistaken premises, but it has served to deepen our knowledge of disease of the spine.

Operations in the Posterior Cranial Fossae.—Mintz remarks that scarcely anywhere else is there such an accumulation of unfavorable factors as in operations on a posterior cranial fossa. And yet he is able to report cures in 25 per cent. of twenty-six cases of a tumor in this region (16), cysts in or below the cerebellum, a hydatid cyst (3) or serous meningitis. Postoperative hydrocephalus is liable to stretch the tissues and tear open the scar. This is the usual cause of the insidious meningitis after operations in the region.

Vertebral Sarcomas.—Guleke describes three cases of hour-glass tumors in the spine which grew through the intervertebral openings and spread out in the muscles and spaces beyond. The portion in the muscle tissue may grow very large, but these fibrosarcomas develop slowly and seem to be comparatively benign for a long period. Operative measures have every chance for success. He illustrates his three cases and describes the preferable mode of access. One of his patients, a farmer, now 30, was operated on nine years ago, and has been free from all disturbances since. One boy of 11 succumbed to secondary infection from a fistula, and a young woman to infection of a hemopneumothorax that had followed the removal of the tumor. All the patients bore the operation well.

Atresia of Anus and Rectum.—Oppel operated on the otherwise normal and vigorous new-born child by cutting the anus on each side and extending these incisions. The blind stump of the rectum lay 3 cm. above, and this was mobilized through an abdominal incision, and was then sutured to the posterior half of the anus. Through the anterior half, tampons were introduced separate from the rectum. The tampons were gradually removed and clinically normal conditions were restored in time.

Deutsche medizinische Wochenschrift, Berlin

April 21, 1922, **48**, No. 16

Problems of Metabolism. F. Müller.—p. 513. Conc'n No. 17, p. 545.
Testing Renal Functioning. H. Schirokauer.—p. 517.
Localization and Phylogenetic Basis of Fatty Degeneration and Sclerosis of the Aorta. Westenhöfer.—p. 518.
Lymphogranulomatosis. V. Hecker and Fischer.—p. 520. Conc'n.
Relative Size of Penetrating Gunshot Wounds, More Particularly of the Skull. Nippe.—p. 522.
*Test for Occult Blood. Gattner and Schlesinger.—p. 522.
Eosinophilia in Muscular Rheumatism. M. Kaufmann.—p. 524.
*Feeding Through Nose by Drip Method. Samson and Baare.—p. 524.
Personal Prophylaxis of Both Sexes as Aid in Establishing Approximately Sanitary Conditions Among Prostitutes. Schereschewsky and Worms.—p. 526.
*Removal of Pigmentations of the Skin. G. Kromayer.—p. 526.
Ulcers of the Lips and of the Mouth Cavity. Ledderhose.—p. 527.
Technic of Treatment of Gonorrhea. M. Joseph.—p. 529.

Quantitative Test for Occult Blood.—Gattner and Schlesinger have found that the reaction to benzidin strictly parallels the quantity of blood present, from the largest to the minutest amounts, even with occult hemorrhage. The tint, durability and sensitivity are directly proportional to the amount of blood in the fluid. With a set of tubes and serial dilution it is possible not only to detect the occult blood in the stool but to determine whether it is increasing or diminishing from day to day. They describe the exact technic they have found most convenient for this.

Feeding Through the Nose by Drip Method.—Samson and Baare relate that they have tided new-born infants with pylorospasm along by this means until the spasm subsided, and the infant came out from under it without the usual signs of inanition. When the infant lies quietly, the tube can be left continuously in the nose, fastened to the brow and cheek with a couple of strips of adhesive plaster. When it is restless, the tube has to be withdrawn and replaced at need. They found human milk the best to use for this drip feeding, and report two cases in detail. The absence of sucking and vomiting movements and of overfilling of the stomach does away with some of the factors inciting to vomiting, and thus aids in overcoming the tendency to spasm. This drip method might be used for duodenal feeding, and supplying water.

Removal of Pigmentations of the Skin.—Kromayer describes a method of removing freckles, small nevi, liver-spots, etc. The object is to remove the epidermis and along with it the pigment-bearing epithelia without injuring the cutis propria. The method is adapted from dental technic. According to the size of the blemish, the tissues are frozen or infiltration anesthesia (procain, in a 1:150 or 1:200 solution) is employed. A burr of the proper size is chosen and is rotated in the same manner as in dental technic. The teeth or edges of the burr seize hold of the tissues of the epidermis and the cutis vasculosa, whereas the cutis propria, which should be spared in order to avoid scar formation, is left intact unless strong pressure is applied. It is well to begin at the lower end of the field and work upward. When hemorrhage and serous transudation, following the operation, have ceased, the wound surface is covered with a very thin layer of cotton fibers, which stick to the wound surface, dry, and form an artificial scab. In from ten to fourteen days (earlier, if the defect is small) the scab drops off. The site is red at first but after two months all trace of the operation has disappeared. The method is excellent for large liver-spots.

Deutsche Zeitschrift für Chirurgie, Leipzig

April, 1922, **170**, No. 1-4

*Diphtheria of the Esophagus. W. Stupka.—p. 1.
Appendicitis in Hernial Sac. E. Otto.—p. 53.
*Fibrous Osteitis. H. Sauer.—p. 95.
*Blood Pressure During Local Anesthesia. O. Wiemann.—p. 150.
*Reconstruction of Face. A. Lindemann.—p. 182.
*Treatment of Inflammation. R. Eden.—p. 209.
*Wound Diphtheria. Hilgenreiner.—p. 266.

Diphtheria of the Esophagus.—Stupka tabulates the details of 34 cases of fatal diphtheria of the esophagus, published by 24 writers in the course of a century. He also tabulates 9 cases of postdiphtheric stenosis, and describes with roentgenograms 2 cases in his own experience. In 4 of the total 11 cases the stenosis was multiple. One patient was a new-born child; the oldest was a woman of 42. Dysphagia is the most common and important symptom, but it is usually ascribed to the throat process. Expulsion of a cast of the esophagus was observed in 5 cases, but as a rule diphtheria of the esophagus escapes detection. There is ulceration at first and then cicatricial stenosis in the course of two or three months. Measures to prevent development of stenosis should be applied early. A retention sound has been applied with excellent effect by three clinicians lately, to ward off stenosis after swallowing a caustic, and he suggests the possible advisability of this with diphtheria involving the esophagus. It is especially advisable here as the ulcerative process with true diphtheria does not burrow deep.

Fibrous Osteitis.—Sauer's discussion is based on twelve cases, all but one in girls or women.

Blood Pressure During Local Anesthesia.—Wiemann reports from Konig's service research on the blood pressure and the pulse during and after procain-epinephrin anesthesia.

Reconstruction of Parts of the Face.—Lindemann is chief of the *Kieferklinik* at Düsseldorf, and describes correction of some unusually grave war disfigurements of the face.

Physical Chemistry in Treatment of Inflammation.—Eden analyzes the various phases of an inflammatory process, and explains how treatment must vary to meet these different phases. Hyperemia must be stimulated in one phase and checked in another. He ascribes great importance to the protecting action of a coating of fibrin on recent wounds and granulations. He emphasizes that none of the disinfectants proposed to date answer surgical requirements. Test tube experiments and experiments on animals are no criterion of the action on living tissue. The manifold peculiarities of clinical conditions cannot be reproduced in vitro nor in animals. The search for the ideal disinfectant, he says, should be along the lines of research on ions and the laws of molecular absorption and dispersion, the chemistry of colloids, and the effect on bacteria of modifications in osmotic tension. Colon bacteria, for example, disintegrated when transferred from a 0.75 to a 2 per cent. saline, although the latter is not strong enough to be bactericidal. Colon bacillus infection of the urinary apparatus has responded very favorably in his experience to treatment with 20 per cent. solutions of sugar.

Wound Diphtheria.—Hilgenreiner's experience suggests the wisdom of examining the secretion for diphtheria bacilli when a wound does not heal properly. There may be nothing to suggest diphtheria otherwise. In a case described, the relics of an abscess in the breast refused to heal for four months until they finally yielded to a mercurial salve. All kinds of treatment had been applied to no avail before.

Klinische Wochenschrift, Berlin

March 4, 1922, **1**, No. 10

Goiter. Enderlen.—p. 457.
Clinical Examination of Pulse in Arrhythmia. C. Lundsgaard.—p. 461.
Periarteritis Nodosa. W. Gerlach.—p. 467.
Prognosis of Serous Pleurisy in Children. W. Neuland.—p. 470.
Is Metreurysis a Proper, Safe Procedure for the General Practitioner in Placenta Praevia? W. Hannes.—p. 472.
Mode of Action and Stability of Vaccines. C. Lange.—p. 475.
Effect of Sodium Acid Phosphate on Bodily Performance. H. Herxheimer.—p. 480.
Mode of Action of Shepherd's Purse. Heffter and Zondek.—p. 483.
Effect of Proteins on Rate of Sedimentation of Erythrocytes. H. Lohr.—p. 483.
Treatment of Suppuration in Fingers. F. Härtel.—p. 484.
Recent Research on the Chemistry of the Splitting of Sugars into Alcohols. J. Hirsch.—p. 489.

March 11, 1922, **1**, No. 11

Meteorology and Climatology from Practitioner's Standpoint. C. Dorno.—p. 505.
Paralysis Agitans and Tetany Associated with Cerebral Arteriosclerosis. P. Martini and A. Isserlin.—p. 510.
Intracutaneous Injection of Graduated Hydrogen-Ion Concentrations. R. Wagner.—p. 511.
Focal Reaction in Eye in Protein Therapy. G. Tobias.—p. 515.
Phenobarbital in Motor and Psychic Excitement. H. Krisch.—p. 518.
Mercury Not Only a Symptomatic Remedy, But One Affecting Favorably the Course of Syphilis. J. Heller.—p. 519.
Qualitative Undernutrition; Beriberi in Rats. Hofmeister.—p. 522.
Influence of Blood Vessels of Liver on Water Content of Organism and on Hemoclastic Crisis. H. Mautner and G. Cori.—p. 523.
Tuberculous Globus with Lordotic, Cyclic Albuminuria. Neukirch and Rottmann.—p. 523.
Treatment of Trigeminal Neuralgia. Sonntag.—p. 524. Conc'n No. 12, p. 586.
Treatment of Malaria. M. Mayer.—p. 527.
*Medical Impressions of America. H. Holfelder.—p. 531.
Potassium in Relation to Physiologic Radioactivity. H. Zwaardemaker.—p. 535. Conc'n No. 12, p. 594.

Medical Impressions of America.—Reviewed on page 153.

Medizinische Klinik, Berlin

May 7, 1922, **18**, No. 19

Present Status of Schick Reaction. A. Czerny.—p. 587.
*Serotherapy of Diphtheria. U. Friedmann.—p. 587.
*Blister Fluid in Serodiagnosis. A. Buschke.—p. 593.
*Leukocytosis-Inducing Treatment. O. Fischer.—p. 594.
Chronic Urticaria Subsides Under Acriflavine by the Vein; Three Cases. O. Strassen.—p. 597.
*Epinephrin Production in Various Diseases. B. Peiser.—p. 597.
Meningitis in Young Children. K. Bluhdorn.—p. 601.
Examination for Disease of Urethra. E. Portner.—p. 603.
Traumatic Neuroses. H. Engel.—p. 634. Cont'n.
Recent Literature on Public Health. H. Ziemann.—p. 606.

Treatment of Diphtheria.—Friedemann insists that his experience with 4,000 cases of diphtheria in the last seven years has demonstrated that successful treatment is merely a question of the dose of antitoxin in the overwhelming majority of cases. The difference between the effect of large and small doses was most striking in the edematous form of diphtheria. His statistics from various German and Austrian hospitals show a death rate from this disease from 11.7 to 15.2 per cent. since 1914, while Friedemann had only a death rate of 6 per cent. in 3,421 cases, and only 4.3 per cent. in the cases treated with 20,000 units. In two cases of the severest necrotic type, the children recovered under a total of 60,000-90,000 units.

Serodiagnosis from Blister Fluid.—Buschke remarks that the serum in a cantharides plaster blister responds to the Wassermann and the tuberculin tests like the blood serum, but with less intensity. The assumption is gaining ground more and more that the skin is an organ with an internal secretion, and plays an important part in the production of defensive substances. This is evidenced, among other things, he says, by the more generally favorable course of syphilis when a rash develops under mercurial or arsenical treatment.

Leukocytosis Therapy.—Fischer thus designates what others call protein therapy, and he explains its action as inducing the flaring up of inflammatory processes. His reports on the use of sodium nucleinate for this purpose in general paresis have been summarized recently (June 10, 1922, p. 1855).

Influence of Disease on Epinephrin Production.—Peiser reports contradictory findings in regard to the epinephrin content of the blood in various diseases. Only in 9 cases of peritonitis was it constantly low—down to 1.73 mg.—in 88.89 per cent. In tuberculosis it was usually within normal range, as also in 12 cases of carcinoma, and one each of sarcoma and actinomycosis. The only other constant finding was an increase of almost 50 per cent. in all the 11 cases of valvular defect; instead of the average 3.05 it was 4.78 mg.

Traumatic Neuroses.—The official report on two cases is explained and amplified.

May 14, 1922, **18**, No. 20

*Obstetrics Without Vaginal Examination. H. Kupferberg.—p. 617.
Chemotherapeutic Differentiation of Spirochetes in Rabbits. W. Kolle and R. Ruppert.—p. 620.
*Menstrual Disturbances in the Tuberculous. E. Guth.—p. 622.
Significance of Duplication of First Heart Sound. H. Sachs.—p. 625.
*Fatal Ascarid Intoxication. E. Weber.—p. 626.
Inhalation of Lignosulfit. R. Giesbert.—p. 626.
Neosilversalvarsan. F. Hanemann.—p. 627.
Clinical Import of Gas Interchanges. P. Liebesny.—p. 628.
Rudiments of Treatment of Gonorrhea. E. Portner.—p. 632.
Traumatic Neuroses. H. Engel.—p. 634. Cont'n.
Recent Literature on Internal Medicine. F. Bruck.—p. 636.

Obstetrics Without Vaginal Examination.—Kupferberg comments that further measures will have to be devised to combat the increasing number of cases of puerperal fever. They have doubled in the last five years, although the number of births has declined. As a step in the right direction, he urges that the vaginal examination should be done two or three weeks before term, and, after this, no further internal examination or procedures should be allowed until eight days after delivery, except by the rectum. For this, the forefinger, in a rubber cot, is covered with a square cloth, the size of a handkerchief, with a 2 cm. slit in the center, through which the finger is slipped. By this means the finger is protected against soiling. The cloth can be dipped in an antiseptic. If the hard skull bones, fontanels and sutures cannot be felt through the rectum, then face, shoulder or breech presentation is obvious, and further differentiation is easy from without. He warns against mistaking the sinking pains late in pregnancy for labor contractions, reporting two cases in which, after two and three days of alleged labor pains, forceps was applied or the cervix slit in four places. In both cases the cervix had not opened—as might have been ascertained by rectal examination. The slit had been made in a fold in the vagina wall, and the forceps had been applied to the head capped entirely by the uterus wall, stretched to its utmost. The mistake was recognized in time in both cases. A number of minor points to aid in delivery are enumerated.

Menstrual Disturbances with Pulmonary Disease.—Guth has noticed that the course of pulmonary tuberculosis was generally favorable when the menstrual periods were long

and free from premenstrual rise in temperature. When a previously long period became shorter, this was a sign of improvement or acute exacerbation. When the menstrual period was not modified either way, the disease seemed to be a recent infection, and the course was less favorable. A period of less than three days was found only with anemia or chlorosis, and there was generally dysmenorrhea.

Ascaridiasis.—The girl of 11 died in twenty-four hours with symptoms of peritonitis plus ileus, explained by obstructing clumps of ascarids—60 in all—and corresponding toxic injury of the mucous membrane. In a second case, in a girl of 4, the toxic injury was more insidious, and the previously robust child died in two weeks from increasing weakness and heart failure.

Monatsschrift für Geb. und Gynäkologie, Berlin

April, 1922, **57,** No. 5

*The Blood Pressure in the Pregnant. K. de Snoo.—p. 235.
Anatomy and Physiology of the Placenta. O. Frankl.—p. 244.
Congenital Displacement of Kidneys. H. Baumm.—p. 247.
Cesarean Section after Vaginofixation for Prolapse. H. Hillel.—p. 252.

Importance of the Blood Pressure in Obstetrics.—De Snoo combats high blood pressure in the pregnant by repose and dieting. He regards the course of the blood pressure as a better index of conditions than albuminuria. If the pressure drops to normal, the intoxication can be regarded as being at an end for the time being. In eclampsia, the high blood pressure is evidently a means of defense although it brings danger of convulsions, exhaustion of the heart, cerebral hemorrhage, etc. Every woman with a high blood pressure should keep quiet during the last months of pregnancy whether there are any symptoms or not. Systematic examination of the blood pressure is indispensable during pregnancy. "It is the compass with which we often can steer the frailest bark into the harbor of safety." He has never known a case of eclampsia or impending eclampsia without high blood pressure. With this we can distinguish eclampsia from hysteria, brain tumors, epilepsy, etc.

Münchener medizinische Wochenschrift, Munich

April 21, 1922, **69,** No. 16

Indications for and Results of Application of Surgical Measures to the Thorax Among the Tuberculous War Wounded. Burkhardt.—p. 575.
Diagnostic Import of Speed of Sedimentation of Erythrocytes. Bürker. —p. 577. Idem in Pregnancy. Ganssle.—p. 578.
Physicotherapy in Relation to Deep Lying Tissues. Zondek.—p. 579.
Kidney Disease after Angina. Kayser-Petersen and Schwab.—p. 580.
Oan Urine Reactions. H. Boeminghaus.—p. 582.
*Pruritus with Endocrine Derangement. L. Szondi and L. Haas. —p. 584.
Staining Spirochetes with Aid of Neo-Arsphenamin. Krantz.—p. 586.
Prophylaxis of Goiter. Bleyer.—p. 587.
Treatment of Leg Ulcers. L. Simon.—p. 589.
Atresia of the Esophagus. N. Ellerbrock.—p. 591.
Ultraviolet Rays in Varicella. A. Sack.—p. 591.
Device to Aid in Measuring Blood Pressure. F. Kleinknecht.—p. 592.
Method of Lighting Roentgen Room. E. Haeger.—p. 594.
Splint for Upper-Arm Fractures. H. Legal.—p. 594.
Hand Grasp for Artificial Leg. K. Stromeyer.—p. 596.
Local Vaccine Therapy in Furunculosis. A. von Wassermann.—p. 596.
Importance of Care of Teeth During Pregnancy. Björkenheim.—p. 597.

Pruritus as Symptom of Polyglandular Insufficiency.—Szondi and Haas state that of ten patients suffering from essential pruritus which did not respond to the usual dermatologic treatment they found in six cases typical pluriglandular insufficiency, and in the remaining four patients there was dysfunction of at least two endocrine glands. The changes of the genital glands, which other writers mention in connection with pruritus, are only partial manifestations of the pluriglandular insufficiency. In their cases the pruritus was merely a manifestation of endocrine dysfunction plus hypersensibility of the peripheral sensory nerves. The latter was caused by pathologic metabolism products entering the blood stream on account of the dysfunction of the endocrine glands. The hypersensibility exists latent in the whole region of the peripheral sensory nervous system and will manifest itself in the form of itching where there is constant or frequent irritation. An endogenous and an exogenous factor are thus necessary. The endogenous factor consists of a definite constitutional or acquired abnormality of the endocrine system. The most frequent exogenous factors are: fluor, nodes, onanism, rubbing of the collar, etc. The exogenous factor does not bring about the chronic itching except as the above-mentioned constitutional or acquired basis is present. Causal treatment has not so far been able to effect permanent improvement. In stubborn cases roentgen irradiation is recommended as symptomatic treatment.

Wiener klinische Wochenschrift, Vienna

March 30, 1922, **35,** No. 13

Clinical Aspects of Cholelithiasis. N. Ortner.—p. 287.
A Respiratory Apparatus for the Clinical Determination of Energy Exchange in Man. A. Krogh.—p. 290.
Interesting Cases of Roentgenographic Diagnosis. Holzknecht et al. —p. 293.
Double Arch of the Diaphragm in Disease. Hitzenberger.—p. 294.
Tender Spots in Cecal Region in Relation to Chronic Appendicitis. V. E. Mertens.—p. 296.
Dermatitis During Treatment of Syphilis. J. Klaar.—p. 297. Conc'n.

April 13, 1922, **35,** No. 15

The Reticulo-Endothelial System. H. Eppinger.—p. 333.
Diagnosis of Paratyphoid B Bacillus. J. Furth.—p. 337.
Diaphragmatic Hernia. A. Plenk.—p. 339.
Lung Hydatid Cyst Simulating Aneurysm. R. Lenk.—p. 341.
The Sodium-Nucleinate Test in the Malaria Treatment of General Paresis. H. Kogerer.—p. 342.
Syndrome of Discrete Tuberculous Meningitis. N. Blatt.—p. 342.
Technic of Perineural Injections in Sciatica. F. Högler.—p. 343.

April 20, 1922, **35,** No. 16

*Dedication of New Institute for Embryology. A. Fischel.—p. 355.
Paratyphoid. A. Herz.—p. 360.
*Specific Bacteriophagic Action. O. Bail and T. Watanabe.—p. 362.
Oral Sepsis in Relation to Affections Elsewhere. Hauer.—p. 365.
Treatment of Various Forms of Sigmatism. L. Stein.—p. 367.
Angina Pectoris. M. Grossmann.—p. 368.
A Spirochete as Causal Agent of Typhus Fever. A. Belai.—p. 368.

Evolution of Embryology.—This address was delivered at the dedication of the new Institute for Embryology at Vienna. Fischel traces the history of this science from the earliest times to date.

Specific Bacteriophagia.—Bail and Watanabe report the results of research which have apparently established that only the portion of the bacteria active in reproduction is affected by the bacteriophagic process. They describe a process in the course of spermatogenesis in general which seems to be analogous to what is observed in this bacteriophagia.

April 27, 1922, **35,** No. 17

Pathogenesis of Cirrhosis of the Liver. F. Chvostek.—p. 381. Cont'd.
Effect of Certain Diuretics on the Tissues. Molitor and Pick.—p. 389.
Case of Congenital Narrowing of Trachea and Bronchi, Absence of Wall Membrane of Trachea, Plus Diverticulum. Sankott.—p. 391.
Simple Conservative Treatment of Suppurative Bartholinitis with Patent Outlet Duct. H. Weitgasser.—p. 393.
Silicic Acid in Senile Pruritus. F. Luithlen.—p. 394.
Augmentation of Effect of Cocain by Hypertonic Glucose Solution. W. Zemann.—p. 394.
"Internal Antisepsis." Comment. R. Kraus.—p. 395.

Zeitschrift für Kinderheilkunde, Berlin

May 15, 1922, **32,** No. 5-6

*Food Requirement of Underweight Infants. M. Ambrozic.—p. 247.
*The Chlorids and Digestion with Fat-Rich Food. A. Salomon.—p. 271.
*Fulminating Purpura in Infant. König.—p. 282.
*Aplastic Anemia in Child. H. Hummel.—p. 285.
*Acute Atrophy of Liver in Child. E. Lyon and J. Deutsch.—p. 292.
*The Skulls of the Prematurely Born. J. Rosenstern.—p. 298.
*Physical Properties of Food. J. Rosenstern and Lauter.—p. 316.
*Dystrophia of Veins in Infants. E. Slawik.—p. 322.
Esophagus Cyst in New-Born Child. Buttenwieser.—p. 352.

Amount of Nourishment Required by Underweight Infants.—Ambrozic compared the Heubner and the Pirquet systems for estimating the amount of nourishment needed by infants notably under weight. His conclusion is that the amounts should be like those for normal infants of the same length, rather than computed by age or weight.

The Chlorids in Infant's Blood.—Salomon's tests on infants have confirmed that the chlorid content of the blood sinks while digestion is proceeding in the stomach. Fat-rich food forms an exception to this rule, and he theorizes to explain the reason for this.

Fulminating Purpura in Infant.—The apparently healthy infant of 19 months died in two days after the onset of the

purpura. Streptococci were cultivated from the blood and a positive Wassermann was also obtained.

The Bone Marrow and the Blood Picture in Relation to Aplastic Anemia.—Hummel relates that the patient, a boy of 12, belonged to a healthy family. He succumbed to sepsis from infectious purpura after months of aplastic anemia. Notwithstanding the blood findings indicating chronic aplastic anemia, necropsy revealed that the blood marrow was hyperplastic, abounding in leukocytes and eosinophil myelocytes, although the proportion of erythrocytes was small and there were few nucleated erythrocytes. The case emphasizes that in study of anemias we must discriminate between the two functions of the bone marrow, the production of blood corpuscles and the delivery of them to the blood stream. Possibly puncture of the marrow, as Ghedini suggests, may prove instructive.

Acute Yellow Atrophy of the Liver in Child.—An apparently harmless jaundice in the boy of 3½ suddenly assumed a fulminating form. The case confirms the assumption that occult gastro-intestinal infection may induce a catarrhal jaundice which may progress to acute atrophy of the liver.

The Skull of the Prematurely Born.—Rosenstern's tables confirm that the frontal fontanel is smaller the more premature the birth, and other anomalies were noted in the skulls of the thirty-eight prematurely born infants studied.

The Physical Properties of Foods in Infant Feeding.—Rosenstern and Lauter emphasize the importance of the form of the solution in infant feeding, presenting evidence that the scale of dispersion of the elements of the food, rather than its chemical composition, may be of decisive import in its action on the bowel. In this preliminary report of their research on the different behavior of crystalloids, colloids, suspensions and emulsions, they show that colloids and fine suspensions seem to check diarrhea. Albumin checks diarrhea both by its physical and its chemical properties while sugar, both physically and chemically, promotes diarrhea. The physical properties may be the explanation for the favorable action of albumin milk and buttermilk.

Defective Development of Veins in Infants.—Slawik reports clinical observations and histologic and experimental study of dystrophia of veins in infants. He never encountered any actual varicose enlargement of the vessels in infants. In one child the sequence was dystrophia of the veins in early infancy, then vasomotor instability, livid discolorations of the skin, and, later, dilatation of the left heart.

Zentralblatt für Chirurgie, Leipzig

March 4, 1922, **49**, No. 9

Etiology of Peptic Jejunal Ulcer. T. Beer.—p. 282.
Operation for Oblique Inguinal Hernia. F. Harth.—p. 285.
Closure of Hernial Sac with Autoplastic Ligatures. Frank.—p. 288.
Invagination of the Appendix. A. H. Hofmann.—p. 290.

March 11, 1922, **49**, No. 10

Necessity for Repeated Sterilization of Instruments in Cancer Operations. K. Henschen.—p. 314.
"Case of Late Tetanus." C. Pochhammer.—p. 315.
Modified Clamp for Blood Vessels. F. Harth.—p. 317.
Detaching Epididymis to Lengthen Spermatic Cord. Hofmann.—p. 318.
Isolated Laceration of Lacteal in Mesentery from Kick of a Horse. C. Brunner.—p. 320.

March 18, 1922, **49**, No. 11

Cosmetic Incision for Temporary Division of Jaw. F. Konig.—p. 362.
Etiology of Birth-Palsy. A. Schubert.—p. 363.
Epilepsy and Postoperative Tetany. H. Koetzle.—p. 365.
*Abortive Treatment of Erysipelas. J. Kumaris.—p. 368.
Modified Operation for Varicocele. A. Gregory.—p. 369.

Abortive Treatment of Erysipelas.—To check the spread of the initially localized disease, and if possible to bring it to a standstill, Kumaris uses a small thermocautery, with which he performs a punctiform cauterization of the entire skin surface involved, at one sitting; if necessary, under light anesthesia. By thus thoroughly opening up the affected area, with the resulting hyperemia, he endeavors to prevent the migration of streptococci or their injurious action on the organism. In recent years he has treated five cases thus, and the result was excellent in every case. The infection was brought directly to a standstill. The following morning the temperature ranged from 36.5 to 37 C. and remained normal; the treated area was, for the most part, pale. It was not in any case necessary to repeat the cauterization, there being no refractory areas and no extension of the affected area. Refractory areas are prevented by covering very carefully the whole affected area, leaving no islands not cauterized. Extension of the affection is prevented by cauterizing for from 1 to 2 cm. beyond the borders of the erysipelas. The parts affected were the gluteal region, the thigh, the lower leg and the whole leg. The last case presented a high fever, continual vomiting and stupor, the reddening spreading over the whole leg within forty-eight hours. The leg was cauterized under light anesthesia, from the iliac crest down to the toes. The result was astonishing. The patient, who had been feeling wretched the evening before, was sitting up the next morning feeling perfectly well, with a temperature of 37.1 C.

Zentralblatt für Gynäkologie, Leipzig

Feb. 25, 1922, **46**, No. 8

Refractometric Determination of Albumin in Edema Fluid in Kidney Affections of Pregnancy and in Eclampsia. Hellmuth.—p. 290.
Prolapse of Bulging Ureter Through the Urethra. Mayer.—p. 296.
Knotting of the Ureter. R. Hornung.—p. 304.
Effect of Pyramidalis Fasciaplasty. E. Lick.—p. 308.

March 4, 1922, **46**, No. 9

Ovarian Varicocele, Its Clinical Importance. Engelmann.—p. 329.
Kielland's Forceps with Brow and Face Presentations. Meumann.—p. 335.
Alimentary Glycosuria in Diagnosis of Pregnancy. J. Hofbauer.—p. 348.
Comment on Midwifery Bill. N. Ellerbrock.—p. 351.
Invagination of Appendix in Gynecologic Operations. Hofmann.—p. 353.
"Origin of Dropsy of Pregnancy." M. Beckmann.—p. 355.

March 18, 1922, **46**, No. 11

*Division of Work in the Ovary. H. Guggisberg.—p. 402.
Anterior or Posterior Cervical Cesarean Section. Polano.—p. 407.
Blood Coagulation in Deep Roentgenotherapy. Henkel and Gueffroy.—p. 409.
Etiology and Therapy of Extra-Uterine Pregnancy. v. Oettingen.—p. 413.
The Bier-Zimmer Threshold Proteotherapy in the Treatment of Febrile Abortion. W. Nussbaum.—p. 424.

Division of Work in the Ovary.—Guggisberg has been trying a new mode of experimentation to throw light on the problem of division of work in the ovary. He has reached the definite conclusion that the Graafian follicles must be recognized as producing an internal secretion. His investigations lead him also to believe that there is no sharp division between internal and external secretion in the ovary, as has been maintained by some writers.

Zentralblatt für innere Medizin, Leipzig

March 11, 1922, **43**, No. 10

*Blood Pressure in Relation to Diabetes. G. Marañon (Madrid).—p. 169.

High Blood Pressure in Relation to Diabetes.—Marañon regards the relation between high blood pressure and diabetes as very important but also as very obscure as yet. His statements are based on 90 recently observed cases of diabetes. He found, the same as Kylin, that when the diabetes occurred at a more advanced age arterial hypertonia was more common and more intense. The question is, Does this express a causal relation or a mere coincidence? A systematic study of blood pressure in healthy persons 40 years old and upward shows a constant increase of pressure. However, if we examine carefully the course of the arterial pressure and the diabetes in these cases, it appears evident that in a considerable number of patients there occurs a period of arterial hypertonia for a variable length of time before the appearance of glycosuria and other clinical signs of diabetes. When glycosuria finally appears, it often happens that the hypertonia continues for several years and then decreases. In the 90 cases mentioned, he observed that, as a general thing, the high blood pressure decreased in proportion as the patient got farther away from the clinical onset of the diabetes. Certain cases of hypertonia without glycosuria develop later into genuine diabetes. Among those who, at about the age of 40, begin to show signs of high blood pressure, there are a few in whom the development of a diabetic condition seems

likely. In these there will be a more or less marked increase of blood sugar, a decrease of the carbohydrate tolerance, intense circulatory and nervous reaction to injection of epinephrin, and in certain cases the appearance of signs of a diabetic diathesis. Of 22 cases of hypertonia without glycosuria he found hyperglycemia present in 14, or 63 per cent., which agrees with the findings of Hagelberg, Farini, and Williams and Humphrey, though opposed to Kylin's statistics. Kylin found hyperglycemia only once in 15 patients with hypertonia.

Mededeelingen v. d. Burg. Geneesk. Dienst, Batavia

1922, No. 1. English Edition

*Leprosy in Sumatra. L. Bedaan.—p. 1.
Tests of Fatigue in Batavia Schoolchildren. F. H. van Loon.—p. 25.
Prophylaxis of Malaria During Harbor Construction Work. W. Schüffner and B. Hylkema.—p. 47.

Leprosy.—This profusely illustrated article is by the missionary who has organized a model village for lepers in Sumatra, and made it so attractive that they apply voluntarily for admission. Each one has his own house and garden, and their families can visit them at will. Children born in the village are sent away for adoption when they are 3 years old, and none has ever developed leprosy to date.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 15, 1922, **1**, No. 15

*Acute Meningitis. D. Herderscheë.—p. 1508.
*Bronchial Asthma as Nasal Reflex. L. C. Henkes.—p. 1517.
Phenomenology in Psychiatry. H. C. Rümke.—p. 1523.
Two Mosquitoes New to Dutch India. N. H. Swellengrebel.—p. 1535.
Gangrene with Sepsis. J. J. van Leeuwen.—p. 1537.
Consequences of Exclusion of Intestine. C. P. van Nes.—p. 1544.
Visits to American Hospitals. E. Bergsma.—p. 1560.
*Extra Expense of Proprietaries. A. Molema.—p. 1566.

Acute Meningitis.—Herderscheë states that there was no headache in 4 of his 82 cases of suppurative meningitis, no stiffness of the neck in 5, and no Kernig sign in 16. There was no headache in 6 of his 108 cases of tuberculous meningitis. All died of the 17 in which the pneumococcus was found in the spinal fluid; also in the 4 streptococcus cases, and the one case with both the pneumococcus and the streptococcus, also in the one case with colon bacilli, and the one with *Diplococcus crassus*. Only 3 died of the 8 with no micro-organisms found, and 31 of the 68 with meningococci. One patient was left blind, another died two weeks after apparent recovery, and necropsy revealed unsuspected hydrocephalus. Among 539 feebleminded in a Norwegian institution, 3 per cent. were known to have had meningitis. Ten Doesschate found disturbances of various kinds in 48 of 180 soldiers who had had epidemic meningitis from two to thirty-one months before; 54 had died. In Herderscheë's 108 cases of tuberculous meningitis, in 24 the hearing was impaired; 25 had nystagmus; 7, changes in the chorioid, and only a few were free from pains in head or back, early fatigue, etc. Ptosis was noted in 42 per cent. of the cases of tuberculous meningitis, strabismus in 53 per cent. and anisocoria in 55 per cent. In other forms of meningitis the corresponding proportions were 16, 23 and 29. The onset was sudden in 5 per cent. of his tuberculous cases, and in 53 per cent. of the nontuberculous. In one of the latter the apparently healthy boy came home from school at noon with headache, saying that the teacher had boxed his ears. The boy died the same evening, and necropsy revealed the meningococcus meningitis.

Asthma as a Nasal Reflex Neurosis.—Henkes found abnormal conditions in the nose in all but one in a series of 12 cases of asthma of recent development and also in 40 of 48 cases of asthma of long standing. In these 51 cases, the electric current applied to the middle turbinate bone induced a kind of wheezing sound in the breathing, and breathing became more difficult. With pathologic conditions in the nose and pharynx, if this electric test is negative, the cause of the asthma must be sought elsewhere. But if the test is positive, then treatment of the nose, pharynx or some sinus is indicated. Insidious suppuration in the ethmoid cells is particularly liable to be responsible for this form of asthma. He reports a case in which the asthma subsided permanently after the clearing out and healing of an abscess in the middle turbinate. In families in which there seems to be a predisposition to asthma, he has seen the older children develop at times a difficulty in breathing, ascribed usually to nervousness. He is convinced that this is the precursor of actual asthma, a sign of a pathologic reflex route from some anomaly in the nose. In three children of this type the anomaly proved to be adenoids, or an inflammatory process in the nasal mucosa, or unsuspected suppuration in the ethmoid sinus. All three had reacted with wheezing to the electric test, and none have displayed any respiratory disturbance since the cure of these processes. He applied for the test a weak faradic current through an oval metal plate with an area of about 0.25 sq. cm.; the other electrode at the back of the neck. In practice this test is seldom necessary. It is enough to treat any abnormal conditions found. If the asthma does not subside under this, then this electric wheezing test will reveal whether the cause is elsewhere, or more careful search should be made for it in nose and sinuses.

Proprietaries Versus Officinal Drugs.—Molema as a country physician is obliged to dispense his own medicines, and he has been impressed anew of late with the difference in price between the proprietaries and the pharmacopeial drugs. He gives a list of ten of the more commonly used proprietaries with their wholesale prices, 10 kg. totaling 573 florins, while the same amounts of their pharmacopeial equivalents total less than 160 florins. He declares that the physician while guarding the health and strength of his patients should also guard their material interests.

Hospitalstidende, Copenhagen

April 25, 1922, **65**, No. 12

*Ileus as a Consequence of Certain Congenital Anomalies. E. Dahl-Iversen.—p. 189. Conc'n No. 15.

Ileus from Congenital Anomalies.—Iversen does not include in this study atresia of anus or rectum, diaphragmatic hernia and diverticulum of the ileum. He has compiled 36 cases observed in Denmark; 4 were encountered in his service in a two year period. In 2 of these there was volvulus of the small intestine; in another there was multiple atresia of the small intestine, and in the fourth, a fibrous band bound down the duodenum. This last child seemed to have been cured by the excision of this band, but after a week of progressive improvement the vital functions seemed to flag and the infant died from inanition. The operative shock or the narcosis may have been responsible for this, notwithstanding the interval of a week of improvement. He gives the details of the Danish cases, and notes the symptoms that point to the site of the obstruction. The ileus may not develop for several weeks or months after birth or not until some cow's milk clot or chunk of food obstructs the previously permeable stenosis. One infant with green vomiting from birth recovered after entero-anastomosis to exclude the infrapapillary portion of the duodenum, the seat of atresia. This male child has developed normally during the six years since. He knows of only 3 other cases in international literature of successful operations on infants for ileus from congenital anomalies. Entero-anastomosis had been done in 2 and an obstructing band severed in the others. In 7 of the Danish cases the ileus did not develop until the age of 3 up to 56 years.

Hygiea, Stockholm

May 16, 1922, **84**, No. 9

*Râles with Artificial Pneumothorax. S. G. Lindblom.—p. 337.
*Tumor in Soft Palate. R. Roman.—p. 350.
Recent Research on the Blood Pressure. E. Zander.—p. 354. Reply, E. Kylin.—p. 355.

The Râles with Artificial Pneumothorax.—Lindblom warns not to forget that râles may be propagated from the collapsed lung to the other lung when therapeutic pneumothorax has been induced.

Tumor in Soft Palate.—The tumor was successfully removed from the woman of 78. It proved to be of the parotid-mixed tumor type. The first symptoms from it had been noted about eight months before.